

**U.S. Department of Energy
NNSA/NV Approved WSS SET**

Documentation

Format-1 Documents

Note:

1 - The law and standards applicable to all work activities includes Section 5(a)(1) of Public Law 91-596, Occupational Safety and Health Act (i.e., the "General Duty Clause") for development of office safety programs and, as required, a program for mitigating illness and injury associated with repetitive motion. The general requirements of Titles 29 CFR 1910, and 1926 are applicable to each work activity as defined in the standard. If properly implemented, these standards will mitigate the employee hazards not mitigated by the specific standards cited for each WBS element. Personnel are expected to comply with requirements in place for sites and work activities outside their normal work environment.

2 - The environmental regulations cited in WBS 4.5 serve as the umbrella requirements for all WBS elements irrespective of the specific standards which may or may not be cited in each discrete WBS listing.

3 - There are two conventions that should be understood with respect to the standards cited. These are:

(a) When an act or public law is cited, it automatically includes and invokes the codified requirements in the Code of Federal Regulations (CFR) that implement that act or law.

(b) All Title 29 CFR citations include the edition of the consensus standards (i.e., "standards incorporated by reference") in effect when the contract was signed. Other CFR citations include standards incorporated by reference as well; these are included as part of the baseline set although, depending upon the CFR Title, a specific edition may be incorporated rather than the edition in effect when the contract was signed.

4 - This report presents standards by grouping them into the following general categories within each WBS element as applicable: CFR, Consensus Standard, Department of Energy, Federal Government (not in another category), Municipal Code, Other (miscellaneous), State Regulations, and United States Code (USC).

1.1.1 *Employment*

Latest Revision: 8/12/2002

Section 1 - Work Activity:

The following work activities are related to the Human Resources function of Employment:

Relocation

Assistance is provided for new employees and transferring employees in exempt classifications and may be offered to nonexempt personnel when deemed appropriate and approved by the DOE Contracting Officer. The actual relocation process relies on the coordination of the following components, two of which are contracted by the organization:

Employment

The activity includes directing and coordinating the entire relocation process, including travel arrangements (airline ticketing and settling-in lodging), and providing reimbursement and shipping guidelines to the next two components.

Traffic

The activity includes contracting a moving company to facilitate the movement and storage of household goods and personal effects of personnel within the guidelines established by the relocation agreement.

Travel & Relocation

The activity includes the documentation and reimbursement of all authorized expenses in conjunction with the transportation of the employee and dependents.

Travel Agency

The activity includes, when appropriate, the booking of airline tickets, rental cars, and lodging for the employee, as authorized.

Outplacement

An Outplacement Center has been established following the guidelines of the "National Defense Authorization Act of FY 1993," Section 3161, which requires government contractors to provide such assistance for displaced workers affected by workforce restructuring events. Other outplacement components related to Human Resources are described as follows:

Employment Assessment

The activity includes assisting affected employees in assessing their education, knowledge, and skill levels thereby assisting in the pursuit of employment.

1.1.1 Employment

Latest Revision: 8/12/2002

Job Search Assistance

Resume assistance is provided in cooperation with the Nevada Business Service. Information regarding unemployment insurance, union opportunities, employment opportunities, credit counseling services, and federal and state programs is provided by the state of Nevada. A job search network is used to broadcast job openings received from the DOE-generated Job Opportunity Bulletin Board (JOBBS) and other companies, to access America's Job Bank database, and to access data on the Internet.

Training/Retraining

DOE has provided funding for educational assistance which is used to provide counseling and administrative oversight of the application/reimbursement process.

Staffing

A small core of personnel are provided to support the recruiting, advertising, and college relations programs as well as to administer the requisition and job-posting programs.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond a normal office environment.

Relocation management issues involve the application of the following initiatives:

- Determination of allow ability of actual relocation expenses.
- Prompt reimbursement of all authorized expenses.
- Expediting reporting of employee to work at new location.

Outplacement management issues involve the application of the following initiatives:

- Turnaround time for outplacement assistance.
- Consolidation of the education assistance administration.

Staffing management issues involve the application of the following initiatives:

- Matching job openings with the qualified pool of applicants to meet staffing goals.
- Ensuring dislocated workers are considered for employment.

Section 3 – Standards:

The Necessary & Sufficient set of standards consists of the following mandated requirements:

1.1.1 Employment

Latest Revision: 8/12/2002

Standard	Title
10 CFR 707	Workplace Substance Abuse Programs at DOE Sites
<i>Note Required actions: maintaining a safe work place.</i>	
48 CFR 31.205-35	Relocation Cost
<i>Note Required action: allowable actual relocation expenses; reimbursing authorized expenses; and expedited reporting to work.</i>	
48 CFR 970.3102-16	Relocation Cost
<i>Note Required action: allowable actual relocation expenses; reimbursing authorized expenses; and expedited reporting to work.</i>	
48 CFR 992.8	Equal Employment Opportunity
<i>Note This citation makes reference to 41 CFR 260 which is applicable to all DOE contracts.</i>	
DOE O 350.2	Use of Facility Contractor Employees for Services to DOE in the Washington, D.C., Area
<i>Note Added per BCR 2002-016.</i>	
NV O 350.2	Use of Facility Contractor Employees for Services to DOE in the Washington, D.C., Area
<i>Note Added per BCR 2002-016.</i>	
29 USC 206	Equal Pay Act
<i>Note Required actions: matching openings with applicants, and considering dislocated workers.</i>	
29 USC 621, et seq.	Age Discrimination in Employment Act
<i>Note Required actions: matching openings with applicants, and considering dislocated workers.</i>	
29 USC 701, et seq.	Rehabilitation Act of 1973
<i>Note Required actions: matching openings with applicants, and considering dislocated workers.</i>	
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)
<i>Note Required actions: matching openings with applicants, and considering dislocated workers.</i>	
42 USC 2000e, et seq.	Equal Employment Opportunity

1.1.1 Employment

Latest Revision: 8/12/2002

***Note** Required actions: matching openings with applicants, and considering dislocated workers.*

42 USC 727(4h)

National Defense Authorization Act,
Section 3161

***Note** Section refers to actions for outplacement assistance, education assistance, and consideration of displaced workers.*

5 USC 2105 and 29 USC 2601

Family and Medical Leave Act

***Note** Applicable to outplacement assistance, education assistance, and consideration of displaced workers. Required actions: matching openings with applicants, and considering dislocated workers.*

Section 4 - Measurement Parameters:

RELOCATION

- Actual relocation expenses versus maximum allowable expenses.
- Number of days from start of relocation until employee reports to work.

OUTPLACEMENT

- Percent of displaced employees that were assisted through the Outplacement Center.
- Percent of displaced employees obtaining employment through the Outplacement Center.
- Percent of displaced employees that received or are receiving educational assistance.

STAFFING

- Number of days to identify qualified candidate once requisition is approved.

Section 5 - Implementation Considerations:

Consideration should be given to developing and implementing an office safety program.

RELOCATION

Arranging travel, lodging, and rental car reservations is an administrative burden since standards do not require the organization to actually arrange reservations.

OUTPLACEMENT

1.1.1 Employment

Latest Revision: 8/12/2002

Preparing resumes for displaced workers is a significant activity since most affected workers do not have the skills necessary to complete the task independently. Turnaround time on an individual resume has increased from two days to two weeks since 1993. The staff size has continued to decrease while the number of dislocated workers has increased.

STAFFING

The existing job posting program requires e-mailing job opening information to the cognizant personnel who must then manually post the positions on non-electronic bulletin boards.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Mandated regulations may require revisions to the Human Resources Appendices to existing contracts.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.1.2 Employee Relations

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The following work activities are related to the Employee Relations function:

Equal Employment Opportunity (EEO) Activities

All managers, supervisors and employees must comply with provisions of federal and state laws as they pertain to nondiscrimination, affirmative action, and equal employment opportunity. Affirmative Action Plan(s) (AAP) are prepared, disseminated, and monitored. Responses are prepared for both internal and external discrimination complaints. Work is conducted with appropriate entities to ensure that employees receive applicable EEO training.

Grievance Activities

Assistance is provided in responding to internal grievances raised by employees, applicants or previous employees. After verification of facts, a recommendation may be made to resolve the concern and to ensure that the issue has been adequately addressed.

Substance Abuse Activities

A safe work environment is provided for all employees. Education, drug testing, employee assistance, and a rehabilitation aspect are provided whenever possible. Punitive action is taken when necessary to reduce the possibility of accidents by employees who use illegal drugs or misuse or abuse alcohol and to mitigate the harm should such events occur.

Section 2 - Hazards and Management Issues:

The potential for workplace violence, which is recognized as a serious management issue, is addressed with cited standards in WBS 3.7. However, failure to maintain a safe work environment, including eliminating sexual harassment, could result in a host of negative impacts including costly litigation and increased medical costs.

Noncompliance with an AAP can result in the potential loss of the current contract with DOE. Further, failure to support EEO activities, grievance processes, and substance abuse activities (e.g., not fully considering all factors and reporting them accurately) could diminish productivity.

Failure to maintain full and comprehensive reports and records of response to discrimination complaints, both internal and external, can result in the loss of productivity due to a potential necessity to reconstruct the original paper trail and could lead to significant litigation costs.

1.1.2 Employee Relations

Latest Revision: 9/30/1996

The inability to maintain confidentiality agreements, particularly in dealings with agencies or individuals external to the organization, could pose serious consequences such as civil suits.

Section 3 – Standards:

The Necessary & Sufficient set of standards consists of the following mandated requirements:

Standard	Title
10 CFR 707	Workplace Substance Abuse Programs at DOE Sites
<i>Note Required for maintaining a safe workplace.</i>	
41 CFR 60-1	Obligations of Contractors and Subcontractors
<i>Note Required for development, implementation and dissemination of Affirmative Action Plan(s).</i>	
41 CFR 60-2.10 through 60-2.32	General Enforcement: Compliance Review and Complaint Procedure
<i>Note Required for development, implementation and dissemination of Affirmative Action Plan(s).</i>	
29 USC 621, et seq.	Age Discrimination in Employment Act
<i>Note Required employee action: response to discrimination complaints and maintenance of confidentiality.</i>	
29 USC 701, et seq.	Rehabilitation Act of 1973
<i>Note Required employee action: response to discrimination complaints and maintenance of confidentiality.</i>	
29 USC 793	Employment Under Federal Contracts
<i>Note Required for development, implementation and dissemination of Affirmative Action Plan(s).</i>	
38 USC 503, 1502, 1507, and 2012	Vietnam Era Veterans Readjustment Assistance Act of 1974
<i>Note Required for development, implementation and dissemination of Affirmative Action Plan(s).</i>	
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)
<i>Note Required employee action: response to discrimination complaints and</i>	

1.1.2 Employee Relations

Latest Revision: 9/30/1996

maintenance of confidentiality.

42 USC 1981, et seq.

Civil Rights Act

***Note** Required employee action: response to discrimination complaints and maintenance of confidentiality.*

42 USC 2000e, et seq.

Equal Employment Opportunity

***Note** Required employee action: response to discrimination complaints and maintenance of confidentiality.*

5 USC 2105 and 29 USC 2601

Family and Medical Leave Act

***Note** Required for maintaining a safe workplace.*

5 USC 552a

Privacy Act

***Note** Required employee action: response to discrimination complaints and maintenance of confidentiality.*

Section 4 - Measurement Parameters:

EEO Activities:

- Number of equal employment opportunity complaints per total number of employees.
- Decline in the trend of registered equal employment opportunity complaints.

Grievance Activities:

- Number of grievances processed per total number of employees (i.e., ratio).
- Decline in the trend of grievances filed.

Substance Abuse Activities:

- Percent of employees requiring substance abuse rehabilitation.
- Decline in the trend of incidents associated with substance abuse.

Section 5 - Implementation Considerations:

Grievances, discrimination complaints, and concerns may be filed internally or externally. After jurisdiction has been established, an investigation to determine the facts is conducted. Once the investigation is complete, and after an analysis of the facts is concluded, recommendations are made. Procedures are being developed or revised to improve the processing of these issues.

1.1.2 Employee Relations

Latest Revision: 9/30/1996

An Alternative Dispute Resolution process should be established whereby, once jurisdiction is instituted, the parties involved would be called to a meeting to determine the facts in the matter, to determine what is being sought for resolution, and to assist in making an agreement satisfactory to all parties involved. This process could be implemented using internal trained mediators.

In order for managers to become familiar with the previously mentioned standards, training in Equal Opportunity Management, with a refresher course every three years, should be mandatory for managers and supervisors. Employees should be provided training on sexual and other types of harassment, as well as an introduction to the EEO/AA process and the Diversity Program.

An office safety program should be developed and implemented to cover the specific hazards associated with an office work environment.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Potential problems could arise if neutrality and confidentiality is not exercised in actions taken, issues addressed, and resolutions proposed for complaints or concerns brought by employees. The organization and individual managers could be subject to civil penalties, fines, lawsuits, etc.

1.1.3 Compensation

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity includes a pay plan and changes to that plan. It involves developing and executing pay delivery programs, premium and incentives, pay adjustments, job definitions and position descriptions, employee performance management/feedback, and earnings. The pay plan is based upon analyses which defines each employees' pay in relationship to local/national market surveys, justifies an amount to be distributed for merit, promotion, and adjustments to pay, justifies changes to the pay plan structure, allows for changes in an individual employees' pay, job titles, and levels, and includes management's participation in determining compensation strategy.

The scope of this work activity includes management, administration, plan design and eligibility, and communications. Financial and payroll standards associated with this compensation activity are reported under WBS 1.2, Finance. Represented (union) employees' pay plans are determined and administered per negotiated agreements.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond those found in an office environment.

Dissatisfaction with pay or low employee morale increases the potential for reduced productivity, higher turnover, grievances, and increased absenteeism.

The compensation strategy must be effective in attracting and retaining highly qualified personnel to meet mission objectives without affecting the current competitive position. The customer must perceive the cost associated with doing work to be reasonable.

Job definition (i.e., tasks and duties) and necessary employee qualifications (e.g., knowledge, experience, training, certifications) must be identified to adequately describe work, communicate performance requirements, and provide feedback regarding performance.

Compensation administration and communication must not be discriminatory from the reference points of equality and other civil right perspectives.

Administrative, legal, and reporting costs associated with responding to government agency inquiries due to internal/external investigations or grievances are significant.

Federal or state government agencies impose penalties for improper pay associated with assigned/performed work, work hours, and/or overtime.

1.1.3 Compensation

Latest Revision: 9/30/1996

Section 3 – Standards:

Applicable state or foreign statutes are followed wherever employees are assigned. The Necessary & Sufficient set of standards related to this work activity is as follows:

Standard	Title
48 CFR 52.222-6	Davis Bacon Act
<i>Note Davis-Bacon Act (guarantees employees on federally funded projects prevailing wages).</i>	
Worker Adjustment and Retraining Act	Worker Adjustment and Retraining Notification Act
<i>Note Defense Authorization Act, Sect. 3161 and the Worker Adjustment and Retraining Notification Act (Provide notice of layoffs, plant closures and a minimum wage and overtime rates).</i>	
Best Business Practices	N/A
<i>Note Guidance for job description, employee qualifications, performance measures, and feedback.</i>	
State Wage and Hour Laws	State Wage and Hour Laws
<i>Note State Wage and Hour Laws such as Nevada Revised Statute Chapter 608, California Industrial Welfare Commission Wage Order 4, and New Mexico and Maryland wage and hour laws (defines employees eligibility for minimum wages, defines work hours, overtime provisions).</i>	
29 USC 173	Labor Management Relations Act of 1947
<i>Note Labor Management Relations Act (guarantees employees the right to engage in concerted activity for the purpose of collective bargaining).</i>	
29 USC 201, et seq.	Fair Labor Standards Act
<i>Note Fair Labor Standards Act (defines those employees exempt from minimum wage and overtime provisions).</i>	
29 USC 206	Equal Pay Act
<i>Note Equal Pay Act (requires men and women be paid the same for doing equal work).</i>	
29 USC 551 and 41 USC 35-45	Walsh-Healey Act
<i>Note Walsh-Healey Public Contract Act (provides overtime rates in some circumstances).</i>	
29 USC 666	Occupational Safety and Health Act of 1970

1.1.3 Compensation

Latest Revision: 9/30/1996

Note *Occupational Safety & Health Act (defines place of employment free from hazards likely to cause death or serious physical harm) for job qualifications of inspectors.*

29 USC 701, et seq. Rehabilitation Act of 1973

Note *Rehabilitation Act (prohibits discrimination by federal contractors against individuals with handicaps).*

40 USC 276a Davis-Bacon Act

Note *Davis-Bacon Act (guarantees employees on federally funded projects prevailing wages).*

41 USC 351-357 Service Contract Act

Note *Federal/State government pay oversight (affects wages of employees of those furnishing federally contracted services).*

42 USC 12111, et seq. Americans with Disabilities Act (ADA)

Note *Title 1 - Americans with Disabilities Act (prohibits discrimination in hiring, firing, and terms and condition of employment).*

42 USC 1981, et seq. Civil Rights Act

Note *Civil Rights Act (protects employees from discrimination based on race, sex, nationality or age, and nondiscriminatory compensation).*

42 USC 727(4h) National Defense Authorization Act,
Section 3161

Note *Defense Authorization Act, Sect. 3161 (29 USC 701, et seq.) and the Worker Adjustment and Retraining Notification Act, provide notice of layoffs, plant closures and a minimum wage and overtime rates.*

8 USC 1255a Immigration Reform and Control Act

Note *Immigration Reform Act (protects resident aliens against discrimination).*

Section 4 - Measurement Parameters:

Annual review of the compensation plan to determine if pay increases in the focused areas occurred and if the milestones were achieved within the time lines established.

Compare pay changes to the criteria defined in the CIP guidelines, i.e., the dollar and percentage amounts do not exceed that targeted for merits, promotions, adjustments.

Timely submittal of information relating to jobs and pay to state and federal agencies such as the Department of Labor and Office of Federal Contract Compliance Program.

1.1.3 Compensation

Latest Revision: 9/30/1996

Perform job evaluations and job audits in accordance with annual goals and objectives.

Completion of work within preestablished time lines and the turnaround time for job evaluation or pay action processing activities since this is a service-oriented activity.

Number count/percent of project to be completed within a specified time frame.

Dollars spent, unit cost activity, ratio of staff to enterprise and base pay can be defined. These are usually best established under general Human Resources WBS definitions.

Section 5 - Implementation Considerations:

The philosophy and strategies should maximize retention of incumbent employees and provide financial motivation to attract qualified personnel to meet mission objectives. A consistent and cost-conscious approach to competitive pay and internal equity should be practiced. Information should be provided to guide management decisions and to control compensation costs (e.g., turnover analyses, turndown for offered jobs, etc.).

Human Resources aspects of DOE Contracts must be negotiated and approved before changes are made in specified areas. DOE guidance on the same or other specified areas may require unique processing or communication activities to include special reporting.

It is important to convey changes in compensation policies, procedures or practices to employees in a timely and effective manner. Such changes affect their perception of the value of their contributions and/or actual net income and they need the opportunity to understand and adjust to the changes. Effective communications can reduce the number of complaints to management or third parties, which would eliminate the need to respond to individual employee, customer and third party review challenges.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

1.1.3 Compensation

Latest Revision: 9/30/1996

Section 8 - Training:

Not applicable

Section 9 - Vulnerabilities:

Public and customer relations problems can exist when and if employees complain to outside representatives about compensation activities.

1.1.4 Health & Welfare Benefits/Pension Plans

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity is based upon benefit strategy, which defines employees' benefit eligibility, options and contributions in relationship to management philosophy and surveys. The scope of work includes plans and changes to them; delivery programs; employee eligibility, and enrollments; employee/company contributions or premiums; vendor/administrator selection and performance; establish/use of an executive administrative committee; consultant/advisor selection and performance; and associated budgets and costs related to health and welfare benefits and pension plans.

Health & Welfare Benefits include any plan, fund or program established or maintained for the purpose of providing for its participants or their beneficiaries, through the purchase of insurance or by making other financial arrangements, medical, surgical, or hospital care in the event of sickness, accident, disability, death, or unemployment. It may also include other benefits such as paid leave programs. For the purpose of this work activity, workers' compensation and state unemployment insurance standards have been identified to ensure that proper understanding and referencing exist for claims processing, as well as effective and timely communications and/or coordination of benefits as required.

Pension benefits include defined benefit Retirement Plans and defined contribution Savings Plans which provide retirement income or defer income to a time after covered employment ends. The savings plan provides employees with investment options prior to their retirement years. These plans provide employees with two options for income protection -- retirement income replacement and payments or income for survivors. The scope of work includes management, administration, plan design and eligibility, and communications.

Craft (Union) benefits activities are not represented since they must be administered according to a negotiated agreement rather than following federal or state standards.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond those found in an office environment.

Disqualification of plan (loss of tax-favored or qualified status) for failure to provide benefits in line with legal standards, plan definition, and eligibility requirements.

Failure to provide required or committed benefits.

Administrative or reporting penalties due to improper plan definition; failure to

1.1.4 Health & Welfare Benefits/Pension Plans

Latest Revision: 9/30/1996

communicate, process, or interpret benefits; or failure to report information in a proper and timely manner.

High costs associated with poor plan design, eligibility, or plan claims/experience. Since the health plan is self-funded, there is a risk of the plan exceeding projected budget amounts which has an adverse affect on overhead costs and profitability.

Inadequate funding arrangements, unusually high claims, or poor portfolio performance could result in plans becoming under-funded. Funding requirements, administrative costs, and benefit reimbursements are complicated issues and require total understanding of the various plan requirements, administrative options and processes the associated costs.

Section 3 – Standards:

Applicable state or foreign statutes are followed wherever employees are assigned. The Necessary & Sufficient set of standards related to this work activity is as follows:

Standard	Title
Internal Revenue Codes (IRC) -Sections 79, 105, 106, 125, 129 and 132	Internal Revenue Codes (IRC) -Sections 79, 105, 106, 125, 129 and 132
<i>Note</i> Benefit provisions meet legal standards, plan definition, eligibility requirements.	
Old Age, Survivors, and Disability Insurance (Medicare)	Old Age, Survivors, and Disability Insurance (Medicare)
<i>Note</i> Benefit provisions meet legal standards, plan definition, eligibility requirements.	
Older Worker Benefit Protection Act	Older Worker Benefit Protection Act
<i>Note</i> Benefit provisions meet legal standards, plan definition, eligibility requirements.	
State Disability Laws	State Disability Laws
<i>Note</i> Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review..	
State Unemployment Laws	State Unemployment Laws
<i>Note</i> Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure	

1.1.4 Health & Welfare Benefits/Pension Plans

Latest Revision: 9/30/1996

review; and (5) funding arrangement and investment portfolio review..

15 USC 3703, et seq.	Tax Equity and Fiscal Responsibility Act
----------------------	--

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

29 USC 1001	Retirement Equity Act 1984
-------------	----------------------------

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

29 USC 1107, et seq.	Employee Retirement Income Security Act (ERISA)
----------------------	---

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

29 USC 621, et seq.	Age Discrimination in Employment Act
---------------------	--------------------------------------

Note Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review..

42 USC 12111, et seq.	Americans with Disabilities Act (ADA)
-----------------------	---------------------------------------

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

42 USC 13956, et seq.	Consolidated Omnibus Budget Reconciliation Act (COBRA)
-----------------------	--

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

42 USC 1395h	Deficit Reduction Act
--------------	-----------------------

Note Issues resolved: (1) benefit provisions meet legal standards, plan definition, eligibility requirements; (2) provide required and committed benefits; (3) information communication and reporting; (4) periodic budget/expenditure review; and (5) funding arrangement and investment portfolio review..

42 USC 300e	HMO Amendments Act
-------------	--------------------

Note Benefit provisions meet legal standards, plan definition, eligibility requirements.

Section 4 - Measurement Parameters:

1.1.4 Health & Welfare Benefits/Pension Plans

Latest Revision: 9/30/1996

Annual expenditures within preestablished benefit projections.

Annual review of plan participation levels to include highly compensated employees (when applicable).

Establish new benefit plans or changes in administration in accordance with annual goals and objectives.

Timely submittal of information to state and federal agencies such as the Department of Labor and Internal Revenue Service and to vendors and administrators.

Completion of work within preestablished time lines and the turnaround time for benefits processing activities since this is a service-oriented activity.

Number count/percent of project to be completed within a specified time frame.

Dollars spent, unit cost activity, ratio of staff to full enterprise and base pay can be defined. These are typically best established and measured under overall Human Resources definitions.

Acceptable investment manager performance to include rate of return on investment portfolio.

Number of days until an employee off-duty due to job-related injury or illness is returned to at least limited duty.

Section 5 - Implementation Considerations:

Management expects to provide value added, cost effective plans that are competitive and assist in attracting and retaining a motivated work force.

Plans must be administered on an equal, fair, and non-discriminatory basis.

Under specific plan definitions or administrative options, an administrative committee, an actuarial firm, and an investment manager must be selected.

Human Resources aspects of DOE Contracts must be negotiated and approved before changes are made in specified areas. DOE guidance on the same or other specified areas may require unique processing or communication activities to include special reporting.

1.1.4 Health & Welfare Benefits/Pension Plans

Latest Revision: 9/30/1996

It is important to convey changes in benefit policies, procedures or practices to employees in a timely and effective manner. Such changes affect their perception of the value of their contributions and/or actual net income and they need the opportunity to understand and adjust to the changes. Effective communications can reduce the number of complaints to management or third parties, which would eliminate the need to respond to individual employee, customer and third party review challenges.

A determination needs to be made whether the plans will be administered by a third party or with company representatives.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Changes in state and federal laws or interpretation of such may require analyses, discussion, resolution, changes in policies and processes, and communications. DOE initiatives or changes in business philosophy or emphasis may also require the same or similar activities.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Plans are regulated by state and federal requirements and must be administered, communicated, and reported according to government regulations. New federal and state regulations and changes to existing laws have been numerous in recent years.

Public relations problems can exist when and if employee complaints about their eligibility and treatment are made to the media.

1.1.5 Training

Latest Revision: 8/12/2002

Section 1 - Work Activity:

Training programs are developed to ensure that employees possess the skills and knowledge necessary to perform their jobs in a safe, efficient, and effective manner. These programs cover the following areas: environmental, safety, health, safeguards and security; job skills; management training; instructor qualification; and general employee training. Training programs are designed to promote the safety and health of employees and ensure that operations do not adversely affect the public or the environment. The training methods include, but are not limited to: reading assignments, seminars, courses (classroom/laboratory), and on-the-job training. These programs are conducted by in-house training staff, instructor-qualified Subject Matter Experts (SMEs), and subcontractors.

Most training programs are developed and administered using a systematic approach that has proven to be successful for DOE moderate-risk operations such as nonreactor nuclear or high-explosive activities. The five distinct phases included in this approach are: Analysis, Design, Development, Implementation, and Evaluation.

Training needs assessments are conducted to determine employee-specific training requirements in support of line management. To accomplish this, assistance is provided to supervisors and managers to determine what knowledge and skills are required of individual employees to assure that they are qualified to perform their jobs. Additionally, training staff and subject matter expert instructors members attain special qualifications through Train the Trainer programs to ensure that they are competent in the presentation of course materials.

Work activity is initiated by one or more of the following means:

- A request for specific training to correct a skill or knowledge deficiency for a single employee or a category of workers;
- A training need identified by management to meet business priorities and objectives; or
- A requirement for training specified in an applicable law or statute.

There are on-going requirements to update training materials and to maintain an audit trail documenting these changes. It is imperative that as job functions and regulatory directives change, there is a process in place to ensure these changes are captured and incorporated into the appropriate training programs.

1.1.5 Training

Latest Revision: 8/12/2002

The majority of the activity ends when the employee is trained and the records are filed to document the training. Original attendance records are filed in a central location; recorded in a training records database file; and maintained according to standards identified WBS 1.5.1, "Records and Document Management."

Section 2 - Hazards and Management Issues:

For the standard classroom training, no unique hazards exist beyond those normally encountered in an office environment. Skills classes such as forklift training, however, that combine classroom and workplace performance activities in which injury could occur if improperly conducted, do inherently carry certain risks. Hazards associated with the delivery of on-the-job (OJT) training range from minimal to moderate depending on the type of training being conducted and the controls used to mitigate potentially hazardous situations. Line management, safety professionals, and training staff review lesson plans to ensure that safety practices are included and are adhered to during the training sessions. Safety and health issues are given high priority when courses involve extensive field activities where instructors and students engage in closely-controlled exercises such as confined space entry, radiological and hazardous materials response, forklift safety, and crane operator training.

Potential liabilities may also be incurred for poorly designed training. In any job where the potential for an accident or injury exists, it is imperative that the employee be qualified to perform that job (e.g., possess the knowledge and skills necessary to do the work). Of equal importance is maintenance of job analysis data, course materials, and attendance records. Failure to maintain such documents makes it hard to prove appropriate training was completed.

Section 3 – Standards:

Standard	Title
DOE Handbook 1074-95	Alternative Systematic Approaches to Training, January 1995
<i>Note See BCR 2001-016.</i>	
DOE Handbook 1078-94	Training Program Handbook, A Systematic Approach to Training (SAT), August 1994
<i>Note See BCR 2001-016.</i>	

Section 4 - Measurement Parameters:

1.1.5 Training

Latest Revision: 8/12/2002

A training assessment evaluation/performance checklist uses specific criteria derived from a combination of the above-mentioned documents to assess the overall quality of the training program. The Bechtel Nevada training program is also evaluated against specific performance measures that are stated in an Annual Training Plan submitted to DOE/NV.

Cost per student per week of training.

Section 5 - Implementation Considerations:

As the mission at the Nevada Test Site changes, new skills are required of the workforce. Training and qualification programs will have to be developed according to the referenced standards and approved by the appropriate line/functional manager.

Section 6 - Work Environment:

OJT is conducted at individual work sites at all locations. Potentially hazardous OJT situations need to be addressed and mitigated before the beginning of the session.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Contractor management and DOE could be held liable if mandated training is not provided, if employees are not qualified to perform their jobs, or if training is improperly designed or administered. When work-related accidents or incidents occur, one of the first areas examined is the qualification of the employee(s). If the employee(s) involved does not possess the necessary skills and knowledge to properly and safely perform their job, work operations could be stopped, management could be fined, or in cases of injury, management could be held legally liable.

1.1.7 Labor Relations

Latest Revision: 6/25/2002

Section 1 - Work Activity:

This package refers to those individuals not previously discussed under WBS 1.1.2 "Employee Relations" which includes workers who are covered under the collective bargaining agreements who are not permanent, full-time employees of the organizations as well as some workers, typically crafts, who are employees of the organization and are represented by a union. The collective bargaining, grievance, arbitration, and dispute resolution activities described under the Employee Relations function of Labor Relations are unique to this activity.

The following activities are associated with the Employment function of Labor Relations:

- The hiring and termination of craft employees who are employed under the provisions of any of the numerous construction and/or maintenance and operation project labor agreements is dependent upon the coordination of both of the following activities:
- Employment which includes the direction and coordination of the hiring process, including employment forms, and the administration of medical screening and security in-processing.
- Termination which includes the direction and coordination of the termination process, including exit interviews, and the administration of medical and security out-processing.
- An Outplacement Center is operated within the Human Resources organization in response to the requirement for government contractors to assist displaced workers affected by workforce restructuring events. Other outplacement activities include:
- Employment Assessment which involves coordinating with Human Resources to address any concerns of the employee regarding benefits under the "National Defense Authorization Act of FY 1993 - Section 3161" such as medical benefit continuation and educational benefits.
- Training/Retraining which involves coordinating with Training concerning funding that is provided by DOE to support educational assistance including counseling as well as administrative oversight of the application/reimbursement process.

The following work activities are associated with the Employee Relations function of Labor Relations:

1.1.7 Labor Relations

Latest Revision: 6/25/2002

- Collective Bargaining Activities which involves the timely negotiations of the numerous collectively bargained Project Labor Agreements, including the administration of these contracts during their term.
- Grievance and Arbitration Activities which involves administering the grievance procedures established under each Project Labor Agreement. The grievance process provides for unresolved issues to be referred to arbitration. This also involves ensuring that the firm's position regarding the facts of the grievance are adequately documented and presented at the arbitration hearing.
- Promote Resolution of Disputes which involves promoting the goal of no work stoppages; maintaining good relationships with the unions; implementing a training program for supervisors, foremen and general foremen; and designing and implementing a successful Work Assignment Dispute Resolution Process.
- Substance Abuse Activities which involves provisions for pre-employment and "for-cause" drug testing to maintain a safe work environment for employees. This also involves ensuring that the Employee Assistance Program and other services provided to non-bargaining employees are available to craft employees.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond those typically encountered in an office environment for most Labor Relations activities, however, some activities are conducted outdoors which may expose workers to typical risks associated with general construction areas.

Employment-related management issues involve application of the following initiatives:

- Assuring prompt response to the needs of requisitioning organizations.
- Assuring that the provisions of the project labor agreements are followed.

Termination-related management issues involve application of the following initiatives:

- Ensuring that information regarding potential employee dissatisfaction be communicated to the manager of the organization and to the Legal Office.
- Ensuring that educational assistance and other "National Defense Authorization Act of FY 1993 - Section 3161" benefits are administered properly.

1.1.7 Labor Relations

Latest Revision: 6/25/2002

The potential for negative impact exists if labor grievances are not resolved. Discord in the workplace could result in work stoppages. Failure to prevent such labor actions could result in a host of negative impacts including lost work opportunities, customer dissatisfaction, costly litigation, increased costs due to decreases in productivity, public relations problems, and possible fines or penalties.

Section 3 – Standards:

Standard	Title
10 CFR 707	Workplace Substance Abuse Programs at DOE Sites
<i>Note</i>	
41 CFR 260	Equal Employment Opportunity
<i>Note</i>	
NV O 350.1	Contractor Human Resource Management Programs
<i>Note Added per BCR 2002-017.</i>	
Executive Order 11246	Equal Employment Opportunity
<i>Note</i>	
NLRB 102.48(a)	National Labor Relations Board – Rules To Be Followed By Employers
<i>Note Rules and regulations to be followed to avoid the atmosphere prompting work stoppages.</i>	
29 USC 179	Labor Management Relations Act
<i>Note</i>	
29 USC 206	Equal Pay Act
<i>Note</i>	
29 USC 621, et seq.	Age Discrimination in Employment Act
<i>Note</i>	
42 USC 12111, et seq.	Americans with Disabilities Act (ADA)
<i>Note</i>	
42 USC 1981, et seq.	Civil Rights Act
<i>Note</i>	
42 USC 727(4h)	National Defense Authorization Act, Section 3161

1.1.7 Labor Relations

Latest Revision: 6/25/2002

***Note** Section refers to actions for outplacement assistance, education assistance, and consideration of displaced workers.*

5 USC 2105 and 29 USC 2601

Family and Medical Leave Act

Note

Section 4 - Measurement Parameters:

Employment/Outplacement Activities:

- The amount of time necessary to complete hiring of craft employees.
- Percent of displaced employees receiving or received educational assistance.

Collective Bargaining Activities:

- Number of agreements negotiated.
- Number of work stoppages.

Grievance and Arbitration Activities:

- Decline in the trend of formal grievances processed and referred to arbitration.

Dispute Resolution Activities:

- Successful relationship with the Southern Nevada Labor Alliance and the alliance's Continuous Improvement Committees.
- A decline in the number of grievances/appeals submitted to the Work Assignment Dispute Resolution Process Panel.

Substance Abuse Activities:

- No work related accidents or incidents due to substance abuse.
- Decline in the trend of incidents associated with substance abuse.

Section 5 - Implementation Considerations:

An Alternative Dispute Resolution process is being instituted, as an option to the traditional

1.1.7 Labor Relations

Latest Revision: 6/25/2002

grievance/arbitration processes contained in the Project Labor Agreements, with the intent of minimizing the potential for work stoppages.

Section 6 - Work Environment:

Hazards associated with Labor Relations activities range from minimal to moderate depending on the type of work being performed and the controls being used to mitigate potentially hazardous situations.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.2.1 General Accounting

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The General Accounting (GA) area of the Finance functions involves the following activities:

- Cash management
- Accounts payable
- Accounts receivable
- Property accounting (plant & equipment)
- Payroll
- Tax accounting (federal, state & local)
- External reporting (balance sheet, income statement, etc.)

The fundamental purpose of this function is to provide DOE/NV accountability of organizational resources which must be managed in accordance with Generally Accepted Accounting Principles (GAAP). The primary objective is to produce and provide data to satisfy the following elements:

- Accurate and timely recording of all financial transactions.
- Tight control of all obligations within budget appropriations.
- Sufficient details supporting all transactions.
- Timely feedback of all financial reports (i.e., balance sheet, income statement, etc.).

Each of these activities fulfills an integral piece of the Financial Reporting process and each of them must be properly reconciled to the General Ledger and subsidiary records, as necessary, by activity. Essential activities include the following:

- Cash management activities include the timely collection of all cash (and equivalent) receipts, prompt deposit of all cash collections, strict disbursement methods, proper recording of all related transactions, maintaining detailed supporting documentation, and

1.2.1 General Accounting

Latest Revision: 9/30/1996

tight controls to effectively separate employee duties in related areas for proper safeguards and security. Where necessary, employees are required to be bonded to function in and/or around specific areas.

- Accounts payable activity includes the amounts owed for items received, services received, expenses incurred, assets acquired, construction performed, and amounts received but as yet unearned. Effort is made to record all liabilities in a timely and accurate manner. Accrued expenses are made against liability accounts before the actual receipt of an invoice only when the goods and/or services have been received, but not yet billed. Matching expenses against the period in which they are incurred is in line with GAAP. All recorded items are paid according to the letter of credit and Department of Treasury procedures.
- Accounts receivable activity involves the management of accounts receivable, loans receivable, and interagency/interfund receivables from the point of inception through the collection and/or writeoff. Separate accounts are maintained for each debtor. Monthly detail is produced to reflect aging of each account by category. Any direct billing or invoicing to debtors is completed monthly.
- Property accounting (plant & equipment) includes any piece of real or personal property that is acquired through a purchase, is received from another Interagency transfer, is retired from use, is excessed from use, and/or is sold. Thresholds have been established to distinguish between real and personal capital property for additional reporting requirements. Capital property becomes eligible for depreciation (tangible) and/or amortization (intangible). Service life data is maintained to properly calculate depreciation/amortization amounts.
- Payroll labor activities are a key element to financial reporting records in that their accurate, timely capture on a direct or indirect labor basis is critical in the establishment of other related functions.
- Tax accounting activity involves, as with any business entity, the requirement to pay federal, state, and local taxes as a part of routine procedures. A variety of taxes are paid, including employment taxes, sales/use taxes, property taxes, business taxes, and fuel taxes, among others.
- External reporting activity is a result of timely and accurate recording of financial transactions throughout the previously mentioned systems. The Balance Sheet, Income Statement, and other financial statements are produced as needed, which may vary

1.2.1 General Accounting

Latest Revision: 9/30/1996

monthly, quarterly, and/or annually.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond a normal office environment.

A breakdown in the accounting system would lead to the failure to pay subcontractors and vendors. If this were to occur, arrangements would need to be made to pay subcontractors and vendors through other methods, while not relying on the accounting system.

The primary management issues surrounding GA activities is that since most financial reports originate from this area, data reliability is crucial. In accordance with GAAP, this data must be useful. This occurs when it is timely, relevant, reliable, cost beneficial, material, comparable, and consistent. Implications associated with non-performance may include any of the following:

- Improper costing and reliability of potential funding violations.
- Improper reporting of Assets, Liabilities, and Equity.
- Improper recognition of Income and expenses.
- Improper tax liabilities to Federal, State, and Local entities.
- Improper data to make effective decision making.

Section 3 – Standards:

Standard	Title
29 CFR 516 <i>Note Requirements for Payroll.</i>	Records to be Kept by Employers
29 CFR 548 <i>Note Requirements for Payroll.</i>	Authorization of Established Rates for Computing Overtime Pay
29 CFR 785 <i>Note Requirements for Payroll.</i>	Hours Worked
48 CFR 52 <i>Note</i>	Solicitation Provisions and Contract Clauses
48 CFR 932.9 <i>Note Prompt payment requirements for response to accounts payable.</i>	Prompt Payment

1.2.1 General Accounting

Latest Revision: 9/30/1996

48 CFR 9904

Cost Accounting Standards (CAS)

Note The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.403 - Allocation of Home Office Expenses to Segments, 9904.405 - Accounting for Unallowable Costs, 9904.406 - Cost Accounting Period, 9904.408 - Accounting for Cost of Compensated Personal Absence, and 9904.418 - Allocation of Direct and Indirect Costs.

DOE O 534.1, CRD

Attachment 1 - DOE Accounting Handbook

Note

Federal Tax Statutes, State Tax Laws, and Union Agreements for Taxes

Federal Tax Statutes, State Tax Laws, and Union Agreements for taxes

Note Requirements for taxes.

Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)

Generally Accepted Accounting Principles (GAAP)

Note

General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 2

Accounting

Note

General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 6

Pay and Leave

Note

General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 7

Fiscal Requirements

Note

Office of Management and Budget (OMB) Circular A-127

Internal Control Systems

Note Addresses external reporting requirements.

31 USC 1801, et seq.

Prompt Payment Act

Note

Section 4 - Measurement Parameters:

1.2.1 General Accounting

Latest Revision: 9/30/1996

Measurement parameters for the GA function can be summarized into the following areas:

Timely

The information collected must be able to be reported in a timely manner. The timeliness of the data is a function of the system's ability to capture and report the data. A proper mix of qualified personnel and computer resources must exist to be processed in a timely fashion.

Reliable

Safeguards, such as well-defined Internal Controls, must be in place to ensure integrity of the data collected and reported. A "separation of duties" in personnel responsibilities such as the separation of functions of receiving, posting, and processing cash should be implemented. In some cases, it may be necessary to have certain personnel bonded for additional security.

Valid

The ability to "audit" data should be understood as a matter of validation. Each part of the validation process must trace back to source data.

Benchmark

The following indicators/measures were taken from the "Detailed CFO Performance Goals, Objectives and Measures:"

Indicator:

- Accounts receivable delinquencies are minimized
- Number and dollar amount of receivables more than 120 days delinquent as a percent of total receivables.
- Commercial payments and other cash transactions are made in a timely, efficient and cost effective manner
- Number and dollar amount of penalties paid on late commercial payments.
- Number and dollar amounts of lost discounts on commercial payments as a percent of cost beneficial discounts offered.
- Cash management processes are improved, OMB initiatives such as use of electronic

1.2.1 General Accounting

Latest Revision: 9/30/1996

funds transfer are supported, and non-value added activities are reduced

- Number and dollar value of payments accomplished via EFT as a percent of total payments.
- Financial statements are reliable
- Number of qualified opinions or disclaimers on Audited Financial Statements.
- Number of significant Audited Financial Statement deficiencies noted in core areas.
- Financial reports are accurate and timely
- Days early/late in submitting selected external reports.
- Financial data is recorded promptly, consistently and accurately
- Number and Dollar Amount of payroll and other suspense items over 60 days old.
- Number and percent of Departmental Inventory Management System (DIMS) submissions which agree with FIS control numbers & days early/late in submitting quarterly data.
- Financial management controls safeguard against fraud, waste, and abuse
- Number of new and repeat Inspector General findings related to the Management Control Program.
- Number of new and repeat Inspector General audit findings in the area of financial management.
- Adverse audit findings are minimized
- Number of needed improvements disclosed through business management system reviews and "For Cause" reviews.
- Performance measures adequately support financial management goals and objectives
- Number and percent of reliable self-assessments.

1.2.1 General Accounting

Latest Revision: 9/30/1996

- Number and percent of performance goals successfully achieved.
- Customer Orientation, Human Resources, Full Partnership
- Customer suggestions/requirements are addressed
- Percentage of commercial payments made on-time.

Section 5 - Implementation Considerations:

There are no specific implementation considerations associated with activities of the GA function.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Vulnerabilities exist that would result from erroneous data. In the event that costs exceeded obligation funding, violations will be imputed and carried out in the form of penalties.

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity covers the provision of cost accounting services to DOE, DOE/NV contractors and their management, as well as the national laboratories consistent with applicable requirements. The services provided include the following:

- Implementation of sufficient and effective financial procedures, processes and systems. These procedures, processes, and systems assemble and categorize information that is current, complete, and accurate and that conform to cost accounting regulations.
- Ensure that non-contract efforts undertaken are properly identified, accounted for, funded, and adequately disclosed to DOE.
- Manage the accounting for actual costs incurred during contract performance.
- Ensure charging practices are in compliance with the disclosure statement.
- Develop and monitor methods of indirect cost allocation to accomplish full cost recovery.

Core deliverables associated with the Cost Accounting work activity include the following:

- Provide effective cost accounting support to management and DOE.
- Develop policies and procedures that will strengthen cost accounting practices.
- Exercise due diligence using systems to properly manage cost accounting activities.
- Apply oversight responsibility for ensuring compliance with DOE Orders. Oversight will include the development and application of internal controls for cost accounting systems.
- Establish indirect cost rates in accordance with the Financial Management System Improvement Council (FMSIC) cost model and DOE/NV Chief Financial Officer (CFO) guidance.
- Ensure that indirect costs are properly monitored to minimize variances and that maximum funds are available for direct program use.
- Assist DOE/NV by providing data and other cost accounting information needed as a result of DOE/NV or other special requests.

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

- Ensure adequacy of Cost Accounting Reports:
 - * Comply with the policies, procedures, and practices, both manual and automated, to formally communicate proprietary cost accounting information regarding past, current, and future events in support of DOE programs to both internal and external groups.
 - * Provide cost accounting reports free of errors or omissions.
 - * Establish appropriate systems, procedures, and reports which provide cost performance measurement data.
 - * Manage and account for indirect cost rates to accomplish full cost recovery.
 - * Maintain current funding balances in the job cost system.
- Review cost accounting systems and procedures for areas where enhancement and improvements can be made.
- Formally request DOE/NV Financial Services Division approval of all proposed changes to financial systems, accounting and budgeting policies and procedures, particularly those relating to cost accounting and distribution as reflected in the current Cost Accounting Disclosure Statement.
- Provide full disclosure of financial activities.
- Submit cost accounting reports by the due date which meet content and format requirements. Prepare recurring and special financial reports in a consistent manner which are supported by adequate documentation. Financial report data must be verifiable, auditable, and traceable. Distribute cost accounting reports to appropriate program management review to ensure reasonableness and consistency.
- Continue developing performance measurement parameters and indicators for cost accounting.
- Monitor distribution pool and recharge rates to ensure equitable charges and minimum annual variances.
- Ensure labor load computations are made in a way that minimal changes are needed

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

throughout the year.

- Establish adequate audit trails.
- Establish a fair and equitable cost distribution system with allocable costs reflected in financial reports properly charged to benefiting final cost objectives within DOE/NV policy guidelines.

Other Work Activities are interfaced with on a regular basis. Actual costs incurred are booked to the cost accounting system. Actual cost data is used by management for forecasting, tracking, and reporting costs (budget vs. actual) to DOE. The cost accounting organization, while responsible for oversight of the financial information within the cost accounting system, must rely on Project Management and Procurement processes to provide timely and accurate data to the system. Therefore, interfaces and effective coordination between Project Management, Procurement, Cost Accounting, and other organizational functions are critically important for ensuring timely and accurate data is available for management and DOE.

Section 2 - Hazards and Management Issues:

There are no unique hazards other than those that exist within a normal office environment.

The primary management issues are financial impacts on the organization and DOE if the cost accounting process is not performed correctly. These would include:

- Not accounting for actual overhead and programmatic costs properly (e.g., timely and accurately). Cost overruns could occur (e.g., exceed congressionally mandated funding levels). FIS error inputs to DOE could also occur.
- Not maintaining or consistently applying overhead and recharge rates that are representative of the activity being managed. Major changes in overhead rates and large over/under distribution variances would negatively effect overhead and program management of fiscal operations.
- If either of the above mentioned circumstances occur, they could cause irreparable harm to the business entities goodwill, credibility, and image with DOE and/or customers.

Section 3 – Standards:

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

Standard	Title
10 CFR 708	DOE Contractor Employee Protection Program
<i>Note</i> Requirements for processing of complaints by employees.	
48 CFR 970.5204-59	Whistleblower Protection for Contractor Employees
<i>Note</i> Requirements for regulation of waste, fraud, and abuse.	
48 CFR 9904	Cost Accounting Standards (CAS)
<i>Note</i> The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.405 - Accounting for Unallowable Costs, 9904.406 - Cost Accounting Period, and 9904.418 - Allocation of Direct and Indirect Costs.	
DOE O 534.1, CRD	Attachment 1 - DOE Chief Financial Officer's Accounting Handbook
<i>Note</i>	
Financial Accounting Standards Board's Generally Accepted Accounting Principles (GAAP)	Generally Accepted Accounting Principles (GAAP)
<i>Note</i>	
General Accounting Office (GAO) Policy and Procedures Manual for Guidance of Federal Agencies, Title 2	Accounting
<i>Note</i>	
Reporting System	Reporting System
<i>Note</i> A Reporting System consistent with the following requirements: * Work Breakdown Structure - hierarchy of elements of the work effort, * Line Item Reporting - items required by the statement of work, * Cost Element Reporting - a subdivision of direct and indirect costs, * Organization/Labor Category Reporting - by organizational elements, * Construction Element Reporting - based on Title stages 1, 2, & 3, * Reporting by Budget & Reporting Number - if need for the work effort, and * Degree of Reporting Complexity - commensurate with magnitude and complexity of the work effort and the product.	

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

Section 4 - Measurement Parameters:

The recommended measurement parameters for this activity are:

Accuracy will be measured by the number of errors per the monthly FIS submittal. An error is defined as a line item requiring DOE intervention for any reason, ranging from translation table edit errors to improperly recorded balances. The goal takes into account complications arising from conversion to a new consolidated cost accounting system.

Timeliness will be measured by the ratio of standard information submittals completed within deadline to the total number of required submittals. Standard information submittals are defined as the FIS input tape and reimbursable tape. Days early/late in issuing financial management reports and responses to request for information from DOE.

Findings in internal and external audit reports (internal control weaknesses, questionable costs).

Monitor overhead pool and recharge rates. Minimize magnitude and frequency of rate changes. Minimize the amount of over/under distributed cost variances.

The following additional indicators/measures were taken from the "Detailed CFO Performance Goals, Objectives and Measures" (Draft):

FINANCIAL STEWARDSHIP

Functional costs are appropriate in relation to total costs.

- Functional costs as a percent of total cost.

Contractor cost certifications reflect only allowable costs.

- Dollar amount of disallowed costs on Contractor "Statements of Cost Incurred and Claimed"

Financial practices are in conformance with approved disclosure statement.

- Number of significant Cost Accounting Standards non-compliance identified thru internal and external evaluations.

Financial statements are reliable.

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

- Number of qualified opinions or disclaimers on Audited Financial Statements resulting from contractor accounting data.

Financial reports are accurate and timely.

- Days early/late in submitting selected internal & external reports.

Financial data is recorded promptly, consistently and accurately.

- Number of significant Audited Financial Statement deficiencies noted in core areas related to the contractor's financial operation.

- Percent errors in initial monthly DISCAS/FIS submissions & days early/late in submitting the data.

- Number and percent of Departmental Inventory Management System (DIMS) submissions which agree with FIS control numbers & days early/late in submitting quarterly data.

Financial management controls safeguard against fraud, waste, and abuse.

Adverse audit findings are minimized. Performance measures adequately support financial management goals and objectives.

- Number of new and repeat Inspector General findings related to the Management Control Program.

- Number of new and repeat Inspector General and GAO audit findings in the area of financial management.

- Number of needed improvements disclosed through business management system reviews and "For Cause" reviews.

- Number and percent of reliable self-assessments.

- Number and percent of performance goals successfully achieved.

- Accounts receivable delinquencies are minimized.

- Number and dollar amount of receivables more than 120 days delinquent as a percent of

1.2.2 Cost Accounting (Financial Analysis)

Latest Revision: 9/30/1996

total receivables.

CUSTOMER ORIENTATION

- Customers are satisfied with core financial services.
- Customer satisfaction ratings in core financial services.

Section 5 - Implementation Considerations:

DOE Order 1332.1A, "Uniform Reporting System," provides information that might be used as implementation guidance for developing a reporting system that meets the requirements described in Section 3 – Standards. Consideration should be given to developing and implementing a comprehensive office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

If overspending on any program exceeds obligation funding, DOE/NV and the contractor have exceeded legal limits established by Congress and the OMB. Violations of this type carry stiff legal penalties.

1.2.3 *Specialty Areas (Finance)*

Latest Revision: 8/13/2002

Section 1 - Work Activity:

This work activity covers the provision of special accounting services to DOE, DOE/NV, its contractors, and their management, as well as the national laboratories consistent with applicable requirements. Services provided include the following:

INTRA/INTER-AGENCY TRANSFERS

Work performed for other DOE contractor entities requires a documented scope of work; an identified performance schedule and deliverable(s); and a formal cost estimate consistent with that scope of work, performance schedule, and deliverable(s). DOE/NV Budget & Resources Management Division (BRMD) should receive certification of available funding from the authorizing entity or receive a cash order, not exceeding \$100,000, before the scope of work effort may proceed.

Work performed by other DOE contractor entities requires the same documentation. BRMD should receive certification of available funding from the authorizing entity. If no certification is available, a cash order not exceeding \$100,000 before scope of work effort is initiated.

PRODUCT AND SERVICE PRICING

Comprises the policies, procedures, and practices (both manual and automated) that are used to determine the cost of service and/or products furnished to others outside DOE so that full cost recovery is achieved.

Provide reasonable assurance that the product and service pricing process is in conformance with DOE requirements with all exceptions properly authorized and adequately justified, documented, and reported; that department-wide rates are consistently applied; and that biennial review of fees, royalties, rents and other charges for services and items of value provided, required by the Chief Financial Officers (CFOs) Act, is accurately and timely conducted and provides meaningful results and recommendations on revising those charges to reflect costs incurred in providing those services and things of value.

TRAVEL

The travel system comprises the policies, procedures, and practices (both manual and automated) for managing activities associated with permanent change of station, temporary duty, and local travel.

Provide reasonable assurance that the travel system includes adequate controls which ensure that all travel charged to the contract is in accordance with DOE and contract

1.2.3 Specialty Areas (Finance)

Latest Revision: 8/13/2002

requirements; travel is properly authorized; travelers are reimbursed only for entitlements; and vouchers are processed in a timely manner.

REIMBURSABLE WORK

Reimbursable work refers to work or services performed or to be performed for another federal or nonfederal customer for which DOE is compensated by specific type of offsetting collection, known as a reimbursement, which may be credited as authorized by law to the appropriation or fund account of DOE. The reimbursable work or services performed by DOE are financed by funds of the ordering federal customer or by cash advances from a nonfederal customer.

Provide reasonable assurance that reimbursable work being performed has been properly authorized, costed, and funded according to DOE requirements, which include ensuring that budgetary resources have been obtained before commencing work and incurring costs; that there is sufficient reimbursable obligational authority from the departmental CFO within the respective allotment; full cost recovery is achieved; costs do not exceed available funding; a system is in place to provide advance notification of potential funding shortfalls in sufficient time to obtain additional funding or begin orderly termination of the project; and work is managed and accounted for according to the funding limitations and other provisions of the reimbursable agreement.

RELATED PARTY TRANSACTIONS

Related party transactions include transactions between a contractor and its parent or subsidiaries of a common parent. Transactions between related parties commonly occur in the normal course of business. Transactions with related parties include purchases of supplies needed in connection with the performance of work and services received or furnished (i.e., accounting, management, engineering, and legal services). For services received, a request for contractor affiliated sources process is used. Contracting Officer approval of the contractor's fiscal year work plan showing the anticipated level of affiliate support and procedure is required prior to implementation.

Provide reasonable assurance that related party transactions have been identified, conform with DOE requirements, are appropriately authorized and approved, and are adequately disclosed.

The following work activities apply to the special areas/services listed above:

- Apply oversight responsibility for ensuring compliance with DOE Orders. Oversight will include the development and application of internal controls for special accounting areas.

1.2.3 Specialty Areas (Finance)

Latest Revision: 8/13/2002

- Assist DOE/NV by providing data and other cost accounting information needed as a result of DOE/NV or other special requests.
- Adequacy of reports - Comply with the policies, procedures, and practices, both manual and automated, to formally communicate proprietary accounting information about past, current, and future events in support of DOE programs to internal and external groups.

Section 2 - Hazards and Management Issues:

There are no unique hazards other than those that exist within a normal office environment.

The primary management issues are financial impacts on the organization and DOE if the accounting process is not performed correctly. Not accounting for actual costs properly (e.g., in a timely and accurate manner). FIS error inputs to DOE could also occur. The hazard would negatively effect financial management of the special areas within the Controller organization.

There is a significant financial liability if work is performed before the paperwork associated with funding the project is complete, and then for some reason funding is not executed.

Section 3 – Standards:

Standard	Title
41 CFR 301	Travel Allowances
<i>Note</i>	
48 CFR 970.5204-59	Whistleblower Protection for Contractor Employees
<i>Note</i> Invokes 10 CFR 708 relative to waste, fraud, and abuse.	
48 CFR 9904	Cost Accounting Standards (CAS)
<i>Note</i> The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.405 - Accounting for Unallowable Costs.	
DOE M 481.1-1	Reimbursable Work for Non-Federal Sponsors Process Manual
<i>Note</i> Added by Change Request 2000-002, 3/15/200	
DOE O 2110.1A	Pricing of Departmental Materials and

1.2.3 Specialty Areas (Finance)

Latest Revision: 8/13/2002

Services

Note Reimbursable Work (Work for Others)

DOE O 481.1, Chg 1, CRD

WFO (Non-DOE Funded Work)

Note Added by BCR 2000-002. Updated by Change Request 2000-008, 09/06/2000.

DOE O 534.1, CRD

Attachment 1 - DOE Accounting Handbook

Note

DOE O 551.1A, CRD

Official Foreign Travel

Note Added by Change Request 2000-003, 3/1/2000. Revised by Change Request 2000-017 - 12/13/00.

NV O 481.1, CRD

WFO (Non-DOE Funded Work)

Note Added by Change Request 2000-002, 3/15/2000.

Financial Accounting Standards Board's
Generally Accepted Accounting
Principles (GAAP)

Generally Accepted Accounting Principles
(GAAP)

Note

General Accounting Office (GAO) Policy
and Procedures Manual for Guidance of
Federal Agencies, Title 2

Accounting

Note

General Accounting Office (GAO) Policy
and Procedures Manual for Guidance of
Federal Agencies, Title 5

Federal Travel Regulations, Chapter 301
(GAO Title 5 Transportation)

Note Travel requirements.

Section 4 - Measurement Parameters:

The recommended measurement parameters for this activity are:

Accuracy will be measured by the number of errors per submission/report.

Timeliness will be measured by the ratio of standard information submittals completed within deadline to the total number of required submittals.

The following additional indicators/measures were taken from the "Detailed CFO Performance Goals, Objectives and Measures" (Draft):

1.2.3 *Specialty Areas (Finance)*

Latest Revision: 8/13/2002

Indicator

Measure

Financial Stewardship

Contractor cost certifications reflect only allowable costs.

Dollar amount of disallowed costs on Contractor "Statements of Cost incurred and Claimed".

Financial practices are in conformance with approved disclosure statement.

Number of significant Cost Accounting Standards non-compliances identified thru internal and external evaluations.

Financial statements are reliable.

Number of qualified opinions or disclaimers on Audited Financial Statements resulting from contractor accounting data.

Financial data is recorded promptly, consistently and accurately.

Number of significant Audited Financial Statement deficiencies noted in core areas related to the contractor's financial operation.

Financial management controls safeguard against fraud, waste, and abuse.
Adverse audit findings are minimized.

Performance measures adequately support financial management goals and objectives.

Number of new and repeat Inspector General findings related to the Management Control Program.

Number of new and repeat Inspector General and GAO audit findings in the area of financial management.

Number of needed improvements disclosed through business management system reviews and "For Cause" reviews.

1.2.3 *Specialty Areas (Finance)*

Latest Revision: 8/13/2002

Number and percent of reliable self-assessments.

Number and percent of performance goals successfully achieved.

Customer Orientation

Customers are satisfied with core financial services.

Customer suggestions/requirements are addressed.

Customer satisfaction ratings in core financial services.

Average travel voucher processing cycle time.

Section 5 - Implementation Considerations:

Steps should be taken to minimize review and approval of plan details once the plan and its associated schedule and budget have been turned over to a project for execution.

DOE Orders 2030.4B and 2030.1C provide information that may be used as implementation guidance for reporting waste, fraud, and abuse.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

If program actual costs exceed obligation funding, DOE/NV and the contractor have exceeded legal limits established by congress and the OMB. Violations of this type carry significant legal penalties.

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The Budgeting work activity is comprised of two related, but distinct, elements; the DOE/HQ Unified Field Budget Call (UNICALL) and the regular budgeting process, detailed as follows:

The UNICALL is a significant work activity. New guidance concerning this process is issued annually by DOE/HQ, the Defense Programs Office, the Environmental Restoration and Waste Management (ERWM) Office, other DOE/HQ departmental offices, and DOE/NV. The entire UNICALL process is unique to the government, its agencies, and government contractors.

The bi-annual budget call, which is a planning tool, includes requests for Capital Equipment and General Plant Projects (GPP), as well as Operating Expenses. The basic budgeting process is separated into three distinct phases: Planning, Formulation, and Execution. Interfaces with other functional departments within the business entity occur frequently, as described below.

Commercial organizations usually have a marketing plan which determines overall advertising, production and spending levels. Within the DOE community, programmatic guidance occurs at the DOE/HQ and DOE/NV levels. This guidance determines production and spending levels. Current work scope input is obtained from all customers such as the national laboratories and the Yucca Mountain Site Characterization Office (YMP).

The first phase of the budget process, Planning, is performed to acquire and to validate work scopes which are obtained from DOE/NV programmatic officials, customers, and internal management. The following rates are also determined: Labor, Overhead, General & Administrative (G&A), Material, Transfers to/from other DOE/NV contractors, Capital Equipment, and projected GPP.

The second phase of the budget process, Formulation, is performed by pricing-out the budget. Specific guidance is obtained from DOE/HQ and DOE/NV relative to inflation rates, formats, due dates, and other input. The budget must be priced out using methods prescribed in the DOE Budget Formulation Handbook.

Customers and primary programmatic officials at DOE/NV often review budgets before they are presented to the DOE Resources Management Division (RMD) as a final product. Review occurs at several stages during the process (e.g., after work scope validation and

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

the first price out). Reviews ensure that all guidance and input are considered when formulating the budget.

Budget validation, which usually takes place before the final product is submitted to RMD, is in most cases performed by personnel outside of budgeting since validation represents an independent review to ensure a quality product and one that conforms to all guidance provided by DOE/HQ, DOE/NV, company management, and customers.

The final phase of the budget process, Execution, occurs when programmatic work scope and the related funding are provided to the Contractor. This informal process involves DOE Program Cost Analysts, company budget personnel, and customers. Once a final work scope is agreed upon, organizational budgets are established and the differences between actual monthly costs and the budgeted amounts are measured in terms of variances. Managers are usually responsible for explaining significant monthly variances. Program budgets are established in order to obtain adequate funding. Monthly budgeted costs are measured against actual costs to ensure that no overruns occur. The primary measurement vehicles are the Departmental Integrated Standardized Core Accounting System (DISCAS) monthly report versus the budget obligation and cost ceilings as reflected in the Approved Funding Program (AFP) issued by RMD. Integrated Management & Operating (M&O) Contractors use the Financial Information System (FIS) to transmit financial data to DOE/NV monthly using a program that translates the contractor's accounts into DOE's FIS accounts.

Budget obligation funding levels are established at Office of Management & Budget (OMB) and congressional levels and are legal funding limits that must not be exceeded. Cost ceilings are administrative levels established at DOE/NV and should also not be exceeded. Cost ceilings usually reflect full-year funding estimates where obligations may not be funded for a full year depending on circumstances.

The following Finance sub-elements have interfaces with the budgeting process:

1.2.1, General Accounting: The Generally Accepted Accounting Principles (GAAP) apply to the budgeting process; e.g., consistency and conservatism.

1.2.2, Cost Accounting: Cost Accounting Standards (CAS), such as allocating home office expenses, apply.

1.2.3, Special Areas: Each special area (reimbursable work for others, transfers to and from DOE/NV contractors, and travel costs) must be estimated in terms of work scope and associated cost estimates to be included in the budget.

1.2.6 **Budgeting**

Latest Revision: 9/30/1996

Significant interfaces with other work activities or programs occur during the budget process. Customers are queried to determine work scopes; functional managers are asked to assess levels of personnel and Capital Equipment/GPP needs; DOE/NV programmatic officials provide input on work scope; and DOE/HQ provides inflation assumptions and formats for the final product.

It is difficult to clearly define boundaries between functional areas. The budgetary process generally relates to the planning, formulation, and execution of the budget while cost accounting, general accounting, and the special areas are cost reporting and asset/liability measurement tools.

Section 2 - Hazards and Management Issues:

There are no unique hazards beyond those expected of a normal office environment.

Management issues, which involve the financial impacts on the organization and DOE if the budget process is not performed correctly, include the following:

- Not properly pricing out the budget and, therefore, not securing enough (or too much) funding. This may cause a funding violation to occur because costs exceed funding or too much funding may be secured for a program causing a shortage elsewhere.
- Not adequately measuring work scope and, therefore, not having enough (or too much) resources; e.g., personnel, equipment, and GPP items (buildings and other facilities). If not enough resources are secured then work scope may not be completed or too many resources may be secured causing excess costs and a shortage in other areas.

If either of the above occurs, this could cause irreparable harm to the business entities goodwill, credibility, and image with DOE and/or customers. For example, if not enough funding is secured, significant portions of work scope may not be completed.

Section 3 – Standards:

Standard	Title
48 CFR 9904	Cost Accounting Standards (CAS)
<i>Note The CAS is generally required. The following specific citations were in effect at the time of identifying the N&S set: 9904.401 - Consistency in Estimating, Accumulating & Reporting Costs, 9904.402 - Consistency in Allocating Costs for the Same Purpose, 9904.403 - Allocation of Home Office Expenses to Business Segments, 9904.404 - Capitalization of Tangible Capital Assets,</i>	

1.2.6 Budgeting

Latest Revision: 9/30/1996

9904.407 - Use of Standard Cost for Direct Material and Direct Labor, 9904.409 - Depreciation of Tangible Capital Assets, 9904.410 - Allocation of Business Unit General and Administrative Expenses, 9904.411 - Accounting for Acquisition Costs of Material, 9904.412 - Composition and Measurement of Pension Costs, 9904.413 - Adjustment and Allocation of Pension Costs, 9904.414 - Cost of Money as and Element of the Cost of Facilities Capital, 9904.415 - Accounting for the Cost of Deferred Compensation, 9904.416 - Accounting for Insurance Costs, 9904.417 - Cost of Money as an Element of the Costs of Capital Assets, 9904.418 - Allocation of Direct and Indirect Costs, and 9904.420 - Accounting for Independent Research and Development Costs and Bid and Proposal Costs.

DOE O 130.1, CRD

Attachment 1 - Budget Formulation Process

Note *If the Budget Formulation Handbook, DOE/NV, and DOE/HQ budget guidance, as well as DOE Order 130.1, "Budget Formulation Process" are followed, then the hazards noted above will be mitigated and the work will be accomplished in a cost-effective and efficient manner. The guidance provided by DOE/HQ is to ensure that they respond to OMB and requirements under OMB Circular A-11.*

Financial Accounting Standards Board's
Generally Accepted Accounting
Principles (GAAP)

Generally Accepted Accounting Principles
(GAAP)

Note *Some GAAP apply, such as consistency, conservatism, checks and balances, and internal controls or separation of duties. Consistency is maintained by building the budget using the same structure the business entity uses for reporting costs. Accounting and budgeting personnel must always be conservative in estimates so that adequate funding may be secured to accomplish all identified work scope yet not include too much management reserve.*

Office of Management and Budget
(OMB) Circular A-11

Preparation and Submission of Budget
Estimates

Note

Section 4 - Measurement Parameters:

FINANCIAL STEWARDSHIP

Objective 4: To ensure quality budget formulation and effective budget execution.

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

INDICATORS/MEASURES:

- Uncosted/unobligated balances are appropriate and understood by appropriation.
- Uncosted/unobligated balances as a percent of total obligational authority.
- Budget estimates are optimized and approved funding is used appropriately.
- Days early/late in meeting critical milestones.
- Timely guidance is provided for meeting critical budget milestones.
- Average deobligation cycle time.
- Budgets are submitted in accordance with CFO Budget Call requirements.
- Average Approved Funding Program (AFP) processing cycle time.
- Budget are effectively planned and executed with established funding levels.
- Programs do not experience funding disruptions.

Other measurement parameters that could be used are labor hours and material dollars compared to last year on the same program and department. A whole host of other cost categories can be monitored, e.g., travel costs, professional services et. al. Variances should be justified in writing to senior management and/or customers.

Another measurement parameter that could be used during the formulation phase is that an approved pricing system was followed. This could be validated in the Budget Validation review.

Other measurement parameters that could be used during the execution phase are number and percent of variances between budgeted program costs and actual costs and budgeted departmental costs and actual costs. Another parametric measure is DOE/NV's budget authority funding violations report in terms of the number of violations and percent of dollar violations.

Additional parameters could be developed using each individual CAS and the OMB Circulars.

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

More parametric measures could compare budgeted overtime costs by department versus actual cost, personnel turnover and additional financial variances on high dollar areas. Since tremendous down sizing has occurred in the commercial world, the "80/20" principle is followed in tracking large dollar items and in many other areas. Briefly, this principle states that 20 percent of any list of data contains 80 percent of the cost (or quantity); therefore, concentrate on tracking, controlling and monitoring that 20 percent because that's where the big dollars are. For example, 20 percent of accounts receivable customers owe 80 percent of the outstanding balances; therefore concentrate collection and tracking efforts on those 20 percent and you will greatly improve cash flow by reducing late payments. This principle can be used in many areas of any business entity.

Section 5 - Implementation Considerations:

The yearly submittal of the DOE/HQ Unified Field Budget Call (UNICALL) is a major job task. DOE Order 130.1, Budget Formulation Process, establishes the UNICALL process and defines the roles and responsibilities of the Headquarters and Field Elements participating. Every year new guidance is issued by DOE Headquarters, the Defense Programs Office, The Environmental Restoration and Waste Management (ERWM) Office, other DOE/HQ Departmental Offices and DOE/NV concerning this process. Guidance provided is over 500 pages. Additional guidance is provided in the Field Section of the DOE Budget Handbook issued by the Chief Financial Officer. The entire UNICALL process is very unique to DOE.

The other GAAP and CAS principles not listed in Section 3 – Standards, are useful implementation guidance because, taken as a whole, they guide toward correct action in every phase of Corporate general and cost accounting which impacts upon the budgeting process in terms of proper accumulation, categorization and summarization of expense versus sales as shown on the Income Statement and Asset Versus Liability as shown on the Balance Sheet. DOE Order 135.1 and OMB Circular A-34 are not strictly applicable to contractors, although they provide useful implementation guidance.

Every DOE contractor should be required to implement some type of monthly budget versus cost reports for both programs and departments. This would ensure that no violations appear on the DOE/RMD AFP budget authority report and that individual departments are properly sized to accomplish work scope.

Additional reports should be in place to measure monthly budget versus actual costs for significant other budgetary elements, e.g., overhead categories, overtime, pension, medical costs et. al.

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

A detailed technical (schedule) planning and control system should be in place at contractors involved in construction and manufacturing. This system should measure cost versus schedule, similar to the WADS/WACS system.

In terms of priority, a broad measure as suggested in the first paragraph is absolutely essential to establish control over program and departmental costs. The budget represents the planning tool while actual costs versus budgeted costs represent controls over costs at appropriate levels of the organization. Next in priority, and very close to cost control, is technical (schedule) control and schedule versus cost control. Each project is different and detailed planning needs to be performed so that an accurate cost and schedule profile is constructed for all major projects. The "80/20" principle can be used with great effectiveness in this area.

Impacts, with most contractors, would probably be minimal in modifying the current work process to perform these implementation considerations. All the data already exists. A detailed system of measurement, reporting and corrective action implementation would have to be constructed to achieve these recommendations. Many organizations already perform these functions in one form or another.

Few changes would be necessary in other processes to support the changes proposed here. Changes may be required in Information Systems reports to provide departmental and program costs and budget data but most Information System reports are already categorized by program and department so this would not represent a major implementation project. Changes in cost models may be necessary to ensure consistency.

Adherence to GAAP and CAS rules and most DOE Orders should flow down to major sub-contractors in a cost-effective fashion.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

1.2.6 *Budgeting*

Latest Revision: 9/30/1996

Budget personnel should be trained in all appropriate phases and sections of the DOE/HQ Budget Handbook, GAAP, CAS, the Federal Acquisition Regulations (FAR), Department of Energy Acquisition Regulations (DEAR) and applicable DOE Orders. Primary budget personnel should have four-year accounting degrees with some government finance/accounting experience.

Section 9 - Vulnerabilities:

If actual program costs exceed obligation funding, DOE/NV and the contractor have exceeded legal limits established by congress and the OMB. Such violations carry stiff legal penalties. If spending in excess of established work scope occurs on a politically sensitive program like the YMP, then significant political repercussions could occur.

1.3.1 Procurement

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity begins with receipt of a Purchasing Requisition (PR) which includes all necessary documentation to write the solicitation and make award, and includes the following supplementary material, as applicable.

- A sole source justification,
- Packaging requirements,
- Statement of work revealing requirement for Foreign Ownership, Control or influence of Contractor (FOCI) and/or an Organizational Conflict of Interest (OCI),
- Specifications, drawings, and other miscellaneous documentation,
- Technical evaluation criteria,
- Quality requirements,
- Safety requirements,
- Flow-down of facility or site requirements,
- Government furnished material or equipment,
- Independent Cost Estimates and/or Basis of Estimates.

The procurement work activity begins when the user is consulted to determine whether acquisition planning documents forecast procurement activities. With receipt of the PR submitted by the user, the bidder's list is compiled, the solicitation including all required flowdown clauses and orders is prepared and released, proposals are received and evaluated, and the contractual document is written and awarded. Some procurements require a technical evaluation to ensure capability of performing the job or providing the correct product, an audit of prices to ensure prices are allowable and allocable, and a quality review of the firm if the item or service must be purchased from an approved vendor. Expeditors ensure the item is received on time; administrators ensure the service or construction project is progressing as ordered and government regulations are being followed. When all items are received or services are completed, the procurement action is closed-out and final payment is made

1.3.1 Procurement

Latest Revision: 9/30/1996

Purchases are varied and include services, commodities, one-time buys, and longer term "just-in-time" contracts. About 90 percent of all procurement actions are one-time purchase orders in the range of \$100,000 or less.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond a normal office environment.

The management issues related to this work activity are as follows:

The procurement work activity described here presumes that the operating entity possesses an approved purchasing system. DOE endorses a purchasing system through an audit process. At the start of any newly-awarded contract, and every three years thereafter, DOE will ensure that all rules and regulations are being followed and that goods and services are being purchased at a reasonable price. An approved procurement system allows the contractor to act without specific review or approval by DOE for all purchases up to a pre-established limit. Without this prior approval, all procurement actions would require DOE consent before award. Waiting for DOE consent would cause excessive delays and would impact work schedules.

Section 3 – Standards:

Non-procurement personnel may use credit cards to purchase most items under \$2,500, or the micro-purchase threshold. Purchases under the micro-purchase threshold are exempt from procurement rules and regulations such as competition, set-asides, clauses (flow-down), etc. Certain items cannot be purchased by credit cards such as computers, hazardous materials, office furniture, or items available on just-in-time basis. The following are the necessary and sufficient set of standards selected for this work activity.

Standard	Title
41 CFR 101 <i>Note</i>	Federal Property Management Regulations
41 CFR 109 <i>Note</i>	DOE Property Management Regulations
48 CFR 19.5 <i>Note</i>	Set-Asides for Small Business
<i>Must set-aside for Small Business. Applies to procurements between \$50,001 and \$100,000.</i>	
48 CFR 22.8	Equal Employment Opportunity

1.3.1 Procurement

Latest Revision: 9/30/1996

***Note** Equal Employment Opportunity. Applies to procurements over \$2,500.*

48 CFR 23.5 Drug-Free Workplace

***Note** Requirements for a drug-free workplace. Applies to procurements over \$25,000.*

48 CFR 25 Foreign Acquisition

***Note** Applies to procurements over \$2,500.*

48 CFR 52 Solicitation Provisions and Contract Clauses

***Note** Requirements for Certifications and Representations. Applies to procurements over \$25,000.*

48 CFR 52.222-13 Compliance with Davis-Bacon and Related Act Regulation

***Note** Requirements for government construction. Applies to procurements over \$2,000.*

48 CFR 52.222-26 Equal Opportunity

***Note** Requirements for Equal Employment Opportunity. Applies to procurements over \$2,500.*

48 CFR 52.222-41 Service Contract Act, as Amended

***Note** Applies to procurements over \$2,500.*

48 CFR 52.222-6 Davis-Bacon Act

***Note** Requirements for government construction. Applies to procurements over \$2,000.*

48 CFR 6 Competition Requirements

***Note** Requires full and open competition. Applies to procurements over \$2,500.*

48 CFR 9.4 Debarment, Suspension, and Ineligibility

***Note** Requires checking Debarred List. Applies to procurements over \$100,000.*

48 CFR 9.5 Organizational Conflict and Consultant Conflicts of Interest

***Note** All Clauses apply to procurements in this category.*

48 CFR 970.5101 Use of Government Supply Sources

***Note** Must purchase from government sources of supply. Applies to procurements over \$2,500.*

48 CFR 970.52 DOE Contract Clauses for Managing and

1.3.1 Procurement

Latest Revision: 9/30/1996

Operating Contractors

Note All Clauses apply to procurements in this category.

48 CFR 970.5204.44

Government Construction

Note

Executive Order 10865

Safeguarding Classified Information Within Industry

Note Deals with foreign ownership, influence or control. All Clauses apply to procurements in this category. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1A and 1B of Executive Order 10865 as of Jan 6, 1993, though both orders are still currently in existence.

Executive Order 12829

National Industrial Security Program

Note Deals with foreign ownership, influence or control. All Clauses apply to procurements in this category. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1A and 1B of Executive Order 10865 as of Jan 6, 1993, though both orders are still currently in existence.

Executive Order 12845

Requiring Agencies to Purchase Energy Efficient Computer Equipment

Note Deals with purchasing computers. Applies to procurements over \$2,500.

Executive Order 12958

Classified National Security Information

Note Deals with foreign ownership, influence or control. All Clauses apply to procurements in this category.

29 USC 793

Employment Under Federal Contracts

Note Applies to procurements over \$2,500.

41 USC 251

Federal Acquisition Streamlining Act (Public Law 103-355)

Note This law generically applies to the FAR and DEAR requirements, it gives leeway to implement best practices in lieu of department practices.

42 USC 10

Buy American Act Requirements (PL 103- 182)

Note Applies to procurements over \$2,500.

Section 4 - Measurement Parameters:

1.3.1 Procurement

Latest Revision: 9/30/1996

The recommended measurement parameters for this activity are as follows:

- Percent of time spent: new PR versus administration for current PR.
- Volume of orders, count and dollar value, placed each month.
- Turnaround time for award of subcontract after receipt of PR.
- Percent of actual completion of services which are consistent with operation schedules.
- Percent of subcontracts that exactly met the requester's specification of services/ construction procured compared to total number of subcontracts in this category.
- Number of change orders and contract modifications processed each month.

Section 5 - Implementation Considerations:

Many of the requirement standards placed on the procurement activity are derived from laws or regulations which cannot be set aside. However, under the Federal Acquisition Streamlining Act (FASA), Public Law 103-355, Department of Energy Regulations (DEARs) for maintenance and operations (M&O) contractors have been modified to allow the contractor to follow "best business practices" and then document the rationale for decisions made. It follows that the contractor should be allowed great flexibility in meeting requirements. For example:

- All orders over \$2,500 must be competed unless a valid sole source justification is received and approved. Instead: Allow the buyer to decide when to require sole source justification and when to compete. If a contractor has a published price list and items have been successfully purchased in the past through competition, let the next award be noncompetitive without a sole source document. Or if only a few contractors can supply an item and the requirement has been competed among them in the past, let the award be on a rotating basis whether the value is \$10,000 or \$100,000. Let the prime decide the threshold for competing and requiring a sole source justification.
- Public laws and regulations like the OCI must be rigidly followed for procurement. Instead: Let the contractor determine the best method to meet these requirements. Currently, DOE forms are used to document every step; from the requester, the subcontractor, and the buyer. The contractor should have the option to determine the best business practice to ascertain whether or not a conflict exists.

1.3.1 Procurement

Latest Revision: 9/30/1996

- DOE Order 470.1, "Identification & Protection of Unclassified Controlled Nuclear Information," states that except for DOE facilities and activities regulated by the Nuclear Regulatory Commission, FOCI applies to DOE and all DOE contractors. Instead: Contractors should be given the flexibility to determine if FOCI exists. Determinations could be made by following Air Force guidelines, a combination of DOE and other agency guidelines, or methods developed internally. Loral Aerospace (Air Force) and Bechtel San Diego (Navy) list the following clause in their terms & conditions: DFAR 252.209-7001, "Certification of Disclosure of Ownership or Control by Foreign Government that Supports Terrorism." The successful proposer must certify that they do not provide business for or are not owned by a foreign government that supports terrorism.
- The Federal Acquisition Regulations (FARs), DEARs, and the prime contract with DOE require many clauses and DOE Orders be flowed down to the subcontracts. Instead: The relationship between the prime and subcontractor should be treated as a commercial transaction. Only clauses required by public law should flow down. The remaining clauses should be those the prime determines necessary to protect their interests, whether a government clause or one written by the prime.

Contractor procurement requirements include many clauses, including those which require that FOCI, OCI, and Department of Energy (DOE) Orders flow down to subcontractors. Because subcontractors may not be familiar with these clauses, they do not submit as many proposals. The inclusion of these clauses also increases the cost for the service because subcontractors charge more to cover unknown requirements that might emerge during subcontract performance. Internal operating costs are also increased because purchasing representatives spend more time conforming to DOE regulations, which increases costs to the user community.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

1.3.1 Procurement

Latest Revision: 9/30/1996

Section 9 - Vulnerabilities:

An unapproved purchasing system would cause excessive delays and would impact work schedules.

1.3.6 *Asset Management*

Latest Revision: 8/13/2002

Section 1 - Work Activity:

Total asset management provides for the management of government property throughout its entire life cycle beginning at acquisition and ending with final disposition. The specific scope of the total asset management function includes, but is not limited to, the following:

- Maintain a total asset management program in conjunction with the U.S. Department of Energy (DOE) which facilitates, coordinates, and promotes the centralized visibility of all non nuclear materials in the inventory to include accountable property, chemicals, raw materials, metals, vehicles, and equipment, repair parts, precious metals, and scrap.
- Administer a system which provides for accountability of both real and personal property assets to include acquiring, inventorying, asset location tracking, transferring, and disposing of individual property items.
- Provide a system which provides for custodianship of individual property items.
- Maintain a system for the administration of excess property to include the sale of surplus property.
- Maintain an internal system that provides the prerequisite information to enable the appropriate property accounting of any property acquired through a purchase, received from another interagency transfer, retired from use, excessed from use, and/or sold. This includes retention of service life data to properly calculate depreciation, maintenance of acquisition cost information to support general accounting requirements and vendor/manufacturer information to support warranty or maintenance management purposes.
- Manage a program administer and control high-risk property which is deemed high-risk due to being (a) nuclear-related; (b) proliferation-sensitive or export controlled; (c) chemically, biologically, or radiologically contaminated; (d) of national security/military interest; and (e) related to operations security matters.

Administrative and operational controls include, but are not limited to, identification, screening for excess, and disposal.

- Conduct sales of surplus property and otherwise dispose of excess government-owned property including scrap.

1.3.6 *Asset Management*

Latest Revision: 8/13/2002

- Maintain precious metals control verification.
- Conduct walk-through inspections to ensure proper use of government property according to applicable regulations and report the results of the inspections to the DOE.
- Maintain a system for the requisition, receipt, inspection, storage, issue, and delivery of supplies.
- Provide warehousing services to facilitate timely receipt, distribution, shipping, and stocking of materials.
- Monitor the use of government property and supplies to ensure economical and efficient use.
- Develop and maintain total asset and property management procedures which facilitate compliance with applicable regulations.

Total asset management clearly includes activity commonly associated with inventory management, storage and distribution, property management supply, excess, and disposal operations to include the accountability of both real property assets (land and facilities) and personal property (all property other than real property). Total asset management may also embrace additional areas such as motor equipment management and the inventory tracking of materials such as chemicals and raw products.

Acquiring and managing real property includes among other things, the planning, conceptualization, design, construction, and acceptance by users of “capital projects” on facilities, utilities, equipment, and other similar work. A comprehensive and complete project management process such as the DOE order O 413.3 -- Program and Project Management for the Acquisition of Capital Assets (and related policies) dated October 13, 2000 for all projects regardless of funding sources are requirements that ensure that accountability, cost effectiveness, and responsibility can be maintained at all times.

Section 2 - Hazards and Management Issues:

No unique hazards exist that are different from operations normally found in both an office and field environment. High-risk property, however, has its own set of unique rules specific to high-risk.

The following management issues represent significant impacts if the total asset management function is not performed correctly:

1.3.6 Asset Management

Latest Revision: 8/13/2002

- Improper use, transfer, disposal, or destruction of high-risk property may pose proliferation risks, create environmental, health, or safety hazards, violate export control laws, or otherwise cause considerable embarrassment to the DOE.
- Incorrect inventorying of items could create improper costing and/or reporting of assets, cause improper recognition of tax liabilities, and potentially lead to violation of various regulations and adverse publicity.
- Management has made the decision that personal property may be given as gifts, provided certain requirements are met, to educational institutions. This is in response to the Department of Energy's desire to foster the scientific and technical education of students.
- Use of a comprehensive documents like DOE Order O 413.3 and NV O 413.X will facilitate risk reduction of the hazards normally associated with capital projects due to greater accountability and focus on these items. Use of DOE O 413.3 and NV O 413.X will eliminate confusion, duplication, inefficiencies, and establish firm accountability and responsibility throughout the organization's capital asset and construction project management activities.

Section 3 – Standards:

Standard	Title
15 CFR 730.3 <i>Note From: General Information of the Export Administration Regulations 15 CFR 730.</i>	Dual Use Exports
29 CFR 1910 Subpart N <i>Note Required for warehousing operations.</i>	Materials Handling and Storage
41 CFR 101 <i>Note</i>	Federal Property Management Regulations
41 CFR 109 <i>Note</i>	DOE Property Management Regulations
48 CFR 945 <i>Note</i>	Department of Energy Acquisition of Government Property
DOE Interim Guidelines on Export	DOE Interim Guidelines on Export Control

1.3.6 Asset Management

Latest Revision: 8/13/2002

Control and Nonproliferation, November 3, 1994	and Nonproliferation
--	----------------------

Note

DOE Interim Policies for Control of High Risk Property, Revision 1, February 7, 1995	DOE Interim Policies for Control of High Risk Property
--	--

Note

DOE O 413.3, CRD	Program and Project Management for the Acquisition of Capital Assets
------------------	--

Note Added by Change Request 2002-002. This standard is implemented through NV O 413.X. Also, see the Note following DOE O 430.1A below.

DOE O 430.1A, CRD (except portions canceled by DOE O 413.3)	Life Cycle Asset Management (LCAM)
---	------------------------------------

Note Added by BCR 99-007. Certain portions deleted by BCR 2002-002, as defined and canceled by DOE O 413.3.

Provides the high-level requirements for development of NV specific plans for life-cycle management of assets. The specific paragraphs canceled by DOE O 413.3 are 6e(7); 7a(3); 7b(11) and (14); 7c(4), (6), (7), (11) and (16); 7d(4) and (8); 7e(3), (10), and (17); Attachment 1, Definitions (item 30 - Line Item Project, Item 42 - Project, Item 48 - Strategic System; and Attachment 2, Contractor Requirements Document (paragraph 1d regarding a project management system. The remainder of DOE O 430.1A remains in effect.

DOE-STD-1120-98	Integration of Environment, Safety and Health into Facility Disposition Activities
-----------------	--

Note Added by Change Request 1999-007.

NV O 413.X, CRD	Project Management Principles and Practices
-----------------	---

Note Added by Change Request 2002-002. Standard to be implemented on all DOE O 413.3 projects and designated activities.

NV O 44XD.1	Gifts of Personal Property In Support of Mathematics and Science Education
-------------	--

Note Added by Change Request 1999-001.

Section 4 - Measurement Parameters:

1.3.6 *Asset Management*

Latest Revision: 8/13/2002

The primary performance measurement for total asset management is continuously maintaining an approved property management system. Additional performance measurements are depicted in the following areas:

- **Timely:** Information contained within the property management system must be reported in a timely manner in order to effectively ensure property accountability and reporting into other business systems.
- **Reliable:** Controls and methods must exist to ensure integrity of the information contained in the property management system.
- **Valid:** There must be an audit/historical trail within the system which traces back to source data.
- **Benchmark:** Specific measures relating to the Total Asset Management operational function follow:
 - Average cost to receive and deliver materials.
 - Average time to receive and deliver materials.
 - Number of significant deficiencies received on inspections and audits.
 - Number and percent of deficient self-assessments.
 - Number and percent of performance goals achieved.
 - Accuracy of inventory management system relative to number of items found during physical inventory compared to number of items on the record.
 - Quantity of loss, damage, and/or destroyed government property reports.
 - Number of inadvertent releases, transfers, or disposal of high-risk property.
 - Number of excess items and associated dollar value redeployed or surplus items donated per annum.
 - Number of surplus items and associated dollar value sold per annum.

1.3.6 Asset Management

Latest Revision: 8/13/2002

- Important measurement parameters are found throughout the 34-page DOE O 413.3 and NV O 413.X, but the overriding baselines in a capital project are scope, schedule, and cost.

Section 5 - Implementation Considerations:

The primary requirements placed on the total asset management function are derived from the standards depicted above in Section 3. The requirements of these standards have been implemented as requirements prerequisite to successful management of government property. The overall concept of total asset management within DOE is relatively new and, therefore, in the embryonic stage. The total asset management activity considers implementation of programs to achieve cost-effective management of assets to include, for example, cost benefits analysis, life cycle cost analyses, value engineering, and analysis of cost-to-hold assets versus sale or disposal of assets.

Section 6 - Work Environment:

The work environment is primarily an office setting. Field construction and visits to site locations may present greater potential hazards and risks and the need for use of personnel protective equipment.

Section 7 - Uncertainties or Issues:

DOE O 413.3 and NV O 413.X mitigate departmental uncertainties from the project management process to be used on DOE O 413.3 projects and designated activities. DOE O 413.3 and NV O 413.X provide for systems and controls which are typical of those used on large capital projects managed by private industry. Industry and government have similar expectation from such systems to receive major scope, schedule, and cost control benefits.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Vulnerabilities exist that would result from erroneous data and/or extensive loss, destruction, or damage to government property under a condition where an approved property system was not in place.

The lack of DOE O 413.3 and NV O 413.X raises the exposure level substantially for scope, schedule, and cost CREEP on NNSA/NV capital projects, due to lack of accountability, control, and responsibility in the project management process.

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

Section 1 - Work Activity:

Information Services Management and Planning is comprised of the following activities:

End User Computing is facilitated by a systems support organization and is the distributed computing function responsible for support of desktop computers. End User Computing includes the following:

- Develop and implement configuration standards,
- Respond to software-related requests,
- Install and assist with software applications for off-the-shelf software packages.

Planning and Management of Computing Assets involves provision of technical systems management to both mainframe and minicomputer systems. This activity begins with analysis of requirements for computing resources at the data center level. Once requirements are identified for acquisition to the procurement process, and implementation, to include data center design and hardware and software installation, is planned. Follow-on activities include performance monitoring, tuning, layered applications support, capacity planning, and other duties. This activity covers all phases from initial identification of a requirement through the excessing of the equipment once it is obsolete or no longer required.

Networking involves the provision of communications network management support beginning with the analysis of requirements for data communications resources at the enterprise level. This activity includes data communications network design and installation. Once requirements are identified, specifications are written to satisfy the requirements and submitted to the procurement process. After the equipment is installed, follow-on activities include performance monitoring, tuning, capacity planning, and network management duties.

Software Management is focused on the acquisition, licensing, inventory, and disposition of commercial “shrink wrap” licensed software used on desktop workstations and network servers. A list of “standard” software packages is maintained based on the review of the baseline information architecture and short-range forecasts of future requirements. In conjunction with the General Counsel’s office legal requirements and the policy on the licensing (with conditions of use) of commercial software are maintained. An automated inventory of acquired software is maintained on a company-wide basis. Excess software

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

that meets “standards” is retained in a repository for redistribution. A list of software available for redeployment is maintained. Restrictions are place on obsolete software to prevent its redeployment.

ADP Maintenance/Support Agreement Management addresses ADP equipment maintenance agreements as well as software support agreements entered into with external vendors. While formal acquisition of such goods and services is within the purview of the Procurement Organization, the Information Services Organization provided the technical expertise and resources needed to ensure that the goods and services being acquired meet business requirements and are cost effective. This function involves the identification of the ADP maintenance/support agreements with external vendors and the determination when agreements can be consolidated or terminated. IT also involves coordination between Information Services and Procurement regarding new computing equipment or software requiring maintenance agreements, and between Information Services and Property Management regarding the retirement of hardware/software under maintenance agreements.

Software applications development and maintenance is performed to help facilitate cost-effective, computer-based applications (i.e., development, acquisition, implementation, and maintenance); to assist clients with information technology planning; to identify requirements; and to provide a single point-of-contact for problem resolution and project coordination. Software applications activities include requirements management, software project planning, software project tracking and oversight, subcontract management, software quality assurance, and software configuration management.

The primary role of applications development is to support core business systems like finance, purchasing, human resources, payroll, and property. The scope also includes organizational and individual application development as well as support for areas such as environment, safety, and health.

Data is a critical resource that must be controlled and managed. Data management provides the specifications for naming conventions, structural definitions, validation checks, storage and access methods, data sharing, and data storage. Major data management sub-activities include data administration and database administration.

IS Management processes include those activities related to the planning, acquisition, development, operation, and maintenance of information systems. The process provides the continuous improvement of service to the customer, the maintenance of organizational and professional standards, and assurance that the work is performed in a cost effective, safe manner. This management function includes the development and publication of

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

information services, policies, and procedures. Also included are administrative processes involving employee safety and health, environmental protection, general office support, development and monitoring of performance measures, conduct of management process, and IS personnel development.

Section 2 - Hazards and Management Issues:

Some support activities are governed by standards applicable to other functional areas that are being supported (e.g., generated records are handled according to "Records Management" standards).

Technological advances and programmatic changes require continual revisions to planning documents. Failure to document requirements could result in delays in obtaining funding to accomplish important initiatives or slow the procurement process.

Provisions need to be made to provide handicapped and non-handicapped employees equivalent access to information technology (i.e., computing) resources if possible.

Generally accepted measures must be taken to protect copyrighted software from unauthorized use or duplication according to manufacturers' agreements.

Data Center and networking resources require maintenance contracts and the facilities must be provided with sufficient power and air conditioning to support this equipment. This includes recovery plans in order to restore operations in the event of a disaster.

In addition to typical office hazards, unique risks include back injury from improper lifting of heavy materials such as computer hardware.

Unnecessary costs may be incurred if users purchase computer assets for a current platform or operating system if that particular platform or operating system is slated for future upgrades to software/hardware elements. Unless computer asset standardization is established, and a mechanism is put in place, which allows the oversight organization to review and approve purchase requisitions prior to their transmission to a procurement agent, upgrading outdated software and hardware will drive up program costs.

Management issues associated with software applications include: software attrition due to inadequate software inventory control and configuration management processes; cost of application changes related to process changes; determination of need an return on investment; use of commercial software versus custom development; multi-organizational impact due to application changes; and, data integrity concerns originating from the

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

importation of data into the application, exporting data from the application, or due to data manipulation by the application.

The need for the successful teaming of the various technical disciplines (e.g., data database management, software development, server and network management, etc.) is also a management issue.

Section 3 – Standards:

The impact of the Information Technology Management Reform Act of 1996, which took effect August 8, 1996, has not been determined at this time.

Standard	Title
48 CFR 227.19	Commercial Computing Software
<i>Note Policy for management of computing software.</i>	
48 CFR 72.4	Rights in Data and Copyright
<i>Note Added by BCR 1998-003.</i>	
<i>Used to establish contract performance requirements and delineate the rights and obligations of the Government and the contractor regarding data made available through contracts.</i>	
Software Engineering Institute (SEI) SEI-93-TR-24	Capability Maturity Model for Software
<i>Note Added by BCR 1998-003.</i>	
<i>The software engineering model and key practices references are recommended by the Software Engineering Institute as necessary to produce repeatable, predictable results from software application development activities.</i>	
Software Engineering Institute (SEI) SEI-93-TR-25	Key Practices of the Capability Maturity Model
<i>Note Added by BCR 1998-003.</i>	
<i>The software engineering model and key practices references are recommended by the Software Engineering Institute as necessary to produce repeatable, predictable results from software application development activities.</i>	
Department of Defense Directive	Data Administration

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

(DoDD) 8320.1

Note Added by BCR 1998-003.

Office of Management and Budget
(OMB) Circular A-130

Security of Federal Automated Information
Resources

Note Appendix III added by BCR 1998-003.

Establishes policy for the management of federal information resources.

PL 104-106, Section 5001 - 5703

Information Technology Management
Reform Act of 1996

Note Added by BCR 1998-003.

Repeals the 30 year old Brooks Act.

Federal Information Processing Standards
Publication (FIPS) 127-2

Database Language SQL

Note Added by BCR 1998-003.

Federal Property and Administrative
Services Act

Federal Property and Administrative
Services Act of 1949

Note Added by BCR 1998-003.

*"Section 111(d)" as amended by the Computer Security Act of 1987, Public
Law 100-235*

National Institute of Science &
Technology (NIST)

Generally Accepted Principals and
Practices for Securing Information Systems.

Note Added by BCR 1998-013.

Contains data management requirements.

15 USC 7, Section 271 - 278g-3

National Institute of Standards and
Technology

Note Added by BCR 1998-003.

*Establishes NIST as the Federal focal point for developing standards and
quality assurance practices for computer systems.*

17 USC 1-215

Copyright Act

Note Added by BCR 1998-003.

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

Outlines the rights of owners and users of copyrighted software and provides sanctions for the infringement of a copyright.

18 USC 2319(b)	Criminal Penalties for software Copyright Infringement
----------------	--

Note Added by BCR 1998-003.

Establishes same.

29 USC 701, et seq.	Rehabilitation Act of 1973
---------------------	----------------------------

Note Added by BCR 1998-003.

Section 508 (Public Law 99-506) FIRMR Amendment 14, Electronic Office Equipment Accessibility for Handicapped Employees (41 CFR Parts 201-1, 201-30, 201-32).

44 USC 3501	Paperwork Reduction Reauthorization Act
-------------	---

Note Added by BCR 1998-003.

Also its predecessor Public Law 96-511, The Paperwork Reduction Act of 1980, which establish a broad mandate for Agencies to perform their information activities in an economical manner.

Section 4 - Measurement Parameters:

Records Management: The efficacy of Information Services asset management can be measured in the accuracy of hardware and software inventory property records.

Handicap Access: Requests to accommodate a handicap, such as a visual impairment, will be responded to and closed within a reasonable period of time.

Copyrights: Random audits of installed software determine the effectiveness of the software management program in upholding software manufacturers' agreements.

Maintenance: The timeliness of annual maintenance reviews or support agreement renewals can be measured to ensure the resources support business requirements. The regular availability of the equipment once it has been installed to meet the needs of the business functions for which it was intended can also be measured.

Section 5 - Implementation Considerations:

Most Information Services work activities are covered using good business practices which

1.4 Information Services Management and Planning

Latest Revision: 8/13/2002

depend on implementation of procurement and property management processes. Some information management projects are no longer the best business practice by the time they are implemented due to the length of the systems development life cycle.

There is a significant cost associated with ensuring that copyright laws are followed. The Software Publishers Association can impose fines and costs as a result of findings from an audit. These fines and costs may be less than the costs of the compliance effort depending on the violation.

Data Center and networking standards are derived from public laws or regulations that cannot be set aside. These activities must have current maintenance contracts to support the technical staff in performing their functions. This function also requires an experienced technical staff, which is capable of identifying business needs that can be satisfied by using information technologies in a cost effective manner. Training must be provided to the technical staff to remain current on these evolving technologies.

Consideration should be given to developing and implementing an effective office safety and safe lifting practices programs.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

The intent of software management is to minimize the potential for software copyright infringement, which would expose the company and employees to severe civil or criminal sanctions.

1.5.1 Records Management and Document Control

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Records Management has the functional responsibility to establish, implement, and manage a cost effective, fully compliant Records Management Program for unclassified documents. This program shall ensure that our customers have the necessary information, in a timely manner, to conduct business.

Document Control has the functional responsibility to establish methods and processes for controlling, distributing, tracking, retrieving, and acting as record copy holder for company documentation. These processes shall ensure that the appropriate revision of the document is utilized.

The basic Records and Document Management process is separated into three distinct phases: creation, maintenance and use, and disposition. The first phase is creation. The primary function of creation is to adequately document the organization, function, activity, and processes. The second phase is maintenance and use. Included within this phase is the protection, control, distribution, and retrieval of documents. The last phase of the Records and Document Management process is disposition. This includes long-term storage, turnover or transfer, archiving, and destruction of inactive documents.

Interface and training with other functional areas occurs on a frequent or daily basis. Under the Records Management program each functional area will identify a Records Coordinator to interface with Records Management staff. Within the Document Control program matrixed personnel will be provided to interface with each functional area

Section 2 - Hazards and Management Issues:

No unique ES&H hazards exist beyond that of a normal office environment.

Management issues include functional areas not setting aside enough funds in their budget for their records and document management needs. This includes the needed space and the personnel necessary for distribution and control, preservation, and timely retrieval of documents. Relative to this is the decreasing budgets and undefined expanding volume of work coupled with the increasing requirements imposed upon records and document management. Failure to control documents can result in work being completed to old or incorrect requirements or standards and can result in rework, safety problems, or audit findings.

Section 3 – Standards:

1.5.1 *Records Management and Document Control*

Latest Revision: 9/30/1996

Standard	Title
36 CFR 1200 Subpart B	Disclosure of Records
<i>Note</i> Records management issue: expanding volume of work; and control, preservation & timeliness.	
36 CFR 1200 Subpart G	Damage to, Alienation, and Unauthorized Destruction of Records
<i>Note</i>	
41 CFR 201 Subparts A and B	Agency Programs
<i>Note</i> Records management issue: space, personnel & equipment; and budgets.	
44 USC 2101	National Archives and Records Administration
<i>Note</i>	
44 USC 2901	Records Management by the Archivist of the United States and by Administrators of the General Services
<i>Note</i>	
44 USC 3101	Records Management by Federal Agencies
<i>Note</i>	
44 USC 3301	Disposal of Records
<i>Note</i>	

Section 4 - Measurement Parameters:

The following measurement parameters were selected as appropriate to the Records and Document Management processes:

- Over/under budget for meeting document and record management requirements.
- Days early/late in meeting document and record management milestones.
- Number and percent of deficient Performance Assessments.
- Number and percent of performance goals successfully achieved.
- Customer survey satisfaction ratings.

Section 5 - Implementation Considerations:

1.5.1 Records Management and Document Control

Latest Revision: 9/30/1996

New document management and imaging systems should be evaluated to determine their usefulness and whether predicted budget levels will support this new technology.

Consideration should be given to developing and implementing an effective office safety program that includes proper lifting techniques for boxes of records.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

The first issue is the receipt of directions to maintain documentation past its destruction date. The second issue is the uncertainty of the volume of documents to be maintained. These both will have impact on the availability of budget, space and personnel to properly manage them.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

All organizational personnel are subject to fines/imprisonment from National Archives and Records Administration (NARA) for the unlawful destruction or taking of government documents. Both NARA and General Services Administration (GSA) may impose penalties and restrictions on agencies who do not follow records management requirements. Failure to provide timely retrievals of information could cause serious consequences.

1.5.3 Mail Management

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The mail centers are operated and managed for timely receipt, distribution, and processing of mail. Mail centers include research and use of the most economical United States Postal Service (USPS) postage rates and services and express mail services. Activities include review and procedure development for mail run schedules, internal mail procedures, and use of government interoffice envelopes. All mail is processed with the most economical and efficient postal service available.

Express mail shipping services contracted by the Government Services Agency (GSA) are used for routine shipments of government letters and packages.

All outgoing mail that requires postage application is processed through a mail center. The post office box rental, bulk rate permit, and business reply permit are used to process mail. The establishment of mail routes and schedules is based on locations, mileage, and bus schedule.

The messenger/courier service picks up all incoming and outgoing mail and delivers it to the USPS, DOE/NV, and government contractor agencies. This includes registered mail, certified mail, express mail, and U.S. Government Messenger Envelopes.

Section 2 - Hazards and Management Issues:

Mail bombs are a hazard unique to handling mail; therefore, there is an awareness of mail, letter, and package bombs and procedures for proper handling.

In addition to typical office hazards, unique risks include back injury from improper lifting of heavy materials, and the potential for exposure to hazardous materials when transporting blood boxes to and from the NTS.

The leased mail meter needs to be examined and validated quarterly and physically examined by the USPS annually.

Section 3 – Standards:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogens
<i>Note Required to mitigate hazards associated with bloodborne pathogens.</i>	
29 CFR 1910.132	Personal Protective Equipment
<i>Note</i>	

1.5.3 Mail Management

Latest Revision: 9/30/1996

Required to mitigate hazards associated with handling and mailing "blood boxes".

U.S. Postal Service Domestic Mail
Manual

Domestic Mail Manual

***Note** Includes instructions for the mailing of hazardous materials.*

Section 4 - Measurement Parameters:

Cost per mile is covered.

The most economical postage fees are used.

Mail pickup and delivery schedules are met.

Section 5 - Implementation Considerations:

Letter and package bomb awareness training is given to new center and courier employees.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.5.4 *Printing and Publishing*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Print Plant capabilities cover a range of services including offset printing, duplicating, binding, stapling, folding, laminating, padding, color copying, as well as blueline and camera services. This work activity covers the printing plant at Mercury and the four duplicating centers at Losee Road, DOE, Remote Sensing Lab and the Control Point (CP) at Mercury.

The types of jobs requested vary greatly. Some are simple, one-step processes such as producing a few copies; others are very complex and involve coordination between various areas of the Print Plant. The complexity of the equipment also varies greatly. Jobs may require anything from hand binders and 30-year-old folding machines to highly sophisticated, computerized, multifunctional duplicating machines. Work includes both classified and unclassified printing and publishing, for which the standards are the same.

This activity begins with the receipt of a "Reproduction Work Request." The "Reproduction Work Request" can be submitted by DOE/NV, laboratories, contractors, and all other agencies. The request must be fully completed and include the number of copies required, whether the project is to be printed on one or two sides, the type of binding required, the type of paper to be used, the project's due date, and any other special services needed. When the requested work is complete, the job is returned to the customer.

Requests may also include printing a classified document which have the same standards as unclassified printing. The printing and publishing activities are the same for both types of materials. WBS 3.7, Industrial Security, addresses the security issues associated with printing and publishing.

Section 2 - Hazards and Management Issues:

There are several hazards associated with reproduction activities. Hazards can include injuries from using machinery, handling chemicals, and being exposed to waste materials, noise, and cleaning agents.

Copyright infringement is a management issue associated with the printing or reproduction of material prepared by employees of the complex.

Use of environmentally preferable products is mandated. These products may not always be preferred, in supply, or the most cost efficient for every job.

Manufacturers of printing and duplicating equipment provide specifications for use. It is

1.5.4 *Printing and Publishing*

Latest Revision: 9/30/1996

the responsibility of the contractor to properly manage the equipment within that specified range. This may require performing some jobs "in house" and sending others to the Government Printing Office (GPO). Included in the management of duplication is the need to control the use of convenience copiers so that larger jobs are sent to the printing and duplicating centers. This ensures that the proper machine is used for each project.

Section 3 – Standards:

The hazards associated with printing and publication are not unique. Mitigation of safety and health risks can be accomplished with the following standards that are used in private industry. Hazardous waste is handled in accordance with the disposal regulations covered in WBS 4.5, "Environmental Protection Program."

Standard	Title
29 CFR 1910.1200 <i>Note</i>	Hazard Communication
29 CFR 1910.212 <i>Note</i>	General Requirements of All Machines
29 CFR 1910.95 <i>Note</i>	Occupational Noise Exposures
48 CFR 908.8 <i>Note</i>	Acquisition of Printing and Related Supplies
Executive Order 12873 <i>Note Environmentally preferable products.</i>	Federal Acquisition, Recycling and Waste Prevention (November 1993)
Government Printing and Binding Regulations No. 26 <i>Note Joint Committee on Printing requirements for management of equipment.</i>	Government Printing and Binding Regulations
Manufacturers Recommendations for Equipment Maintenance <i>Note</i>	Manufacturers Recommendations for Equipment Maintenance
17 USC 1-215 <i>Note</i>	Copyright Act
44 USC Chapter 5 <i>Note</i>	Production and Procurement of Printing and Binding

1.5.4 *Printing and Publishing*

Latest Revision: 9/30/1996

Section 4 - Measurement Parameters:

The recommended measurement parameters for this activity are:

Percent of jobs delivered on time compared to jobs delivered late.

Percentage of requests printed in the two-sided format to establish environmentally sound copying.

Percent of requests printed with recycled paper as per established guidelines.

Printing cost per unit to ensure a cost effective operation.

Section 5 - Implementation Considerations:

In order to fulfill "best business practices," the contractor should be given greater flexibility in meeting requirements. Several requirements stated in the Government Printing & Binding Regulations should be relaxed. For example:

- Standard: All requests of more than 25,000 impressions must be sent to the GPO for printing. Instead, set no limitations on contractor printing and duplicating. Allow the contractor to decide when to send jobs to the GPO. In some exceptional situations, time and money could be saved by using the GPO. The GPO functions primarily as a procurement entity. Substantial time could be saved by allowing the contractor to deal directly with GPO vendors. The GPO charges 6% for its services. DOE requires use of a credit card, which adds another 3%. The total cost to use the GPO with a credit card is 9%.

- Standard: The regulations on color printing from the Joint Committee on Printing must be rigidly adhered to. Instead, allow the contractor to determine how to best use color printing and copying. Out-of-date regulations on the use of color restrict the contractor in keeping up with company needs and national trends. The contractor should have the option to decide whether or not the cost of using color is justified.

The standards cited above are currently in use. Allowing the contractor to send jobs to local vendors would have several beneficial effects. Good will would be created between the contractor and the community. Job processing would be improved in a number of ways including better communication concerning the requirements of the job, increased ability to make corrections, and quicker turnaround time.

The Environmentally Sound Copying memorandum from Hazel R. O'Leary, dated April

1.5.4 Printing and Publishing

Latest Revision: 9/30/1996

22, 1994; this memorandum issues goals on two-sided copying and reemphasizes the government's commitment to ensure the use of recycled paper as stated in Executive Order 12873. It also urges the purchase/lease of machines with two-sided copying capability. In reference to the memorandum, DOE/NV requested schedules of compliance from contractors.

Section 6 - Work Environment:

All work is performed in a plant/shop environment.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

Section 1 - Work Activity:

This work activity covers the management of Scientific and Technical Information (STI) reporting for the purpose of optimizing the availability of useful information, sharing of information resources, and minimizing duplication of STI available elsewhere. Program/Project Managers must plan and budget for the production of STI products that may result from DOE-funded work. performed in their project or programmatic areas.

Additionally, the management of STI encompasses the requirements to protect information through control mechanisms to ensure that all STI products are reviewed for technical accuracy, to policy requirements, patent classification and unclassified sensitive information, and worldwide public releasability, STI products may also require specific copyright statements, disclaimers, credit lines, and other document control markings relevant to the sensitivity level of the product.

The DOE definition of STI is "Information" in any format or medium that is derived from scientific and technical studies, work, or investigations that relate to research, development, demonstration, and other specialized areas such as environment and health protection and waste management. Classified, declassified, and sensitive information is included in the scope of the definition.

Examples of STI product mediums covered in this activity are paper or electronic versions of technical reports (progress, topical, or final), abstracts, journal articles, books, computer media, scientific/technical audiovisual or multimedia, computer software, theses or dissertations, scientific/technical conference presentations, video reports, poster sessions, foreign trip reports, and symposium proceedings.

Section 2 - Hazards and Management Issues:

Hazards associated with work activity involving the management of STI products would be the risk of unauthorized release of sensitive information which would be detrimental to national interest. STI products are controlled by federal laws, rules, regulations, policies, and Executive Orders. Penalties from unauthorized dissemination range from fines, possible loss of government contracts, or prison sentences for deliberate offenders. WBS 3.7, Industrial Security, also addresses this concern.

DOE would be perceived by the public as an agency which is not being open if STI products are not made available to the public. If STI products are not reported as a result of taxpayers' dollars being allocated for research and development (R&D) projects, the taxpayer will not be receiving a return on their investment for these funded R&D projects.

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

The non-reporting of STI products could possibly result in a duplication of effort by other government agencies, laboratories, scientists, researchers, and U.S. industry if research is not shared. This would result in increased time and resources expended and unnecessary costs.

The safety and health hazards associated with this work activity are typical of those found in an office environment.

Section 3 – Standards:

Standard	Title
10 CFR 605	Office of Energy Research Financial Assistance Program
<i>Note</i>	
10 CFR 781	DOE Patent Licensing Regulation
<i>Note</i>	
10 CFR 782	Claims for Patent and Copyright Infringement
<i>Note</i>	
15 CFR 768	U.S. Import Certification and Delivery Verification Procedure
<i>Note</i>	<i>Regulation which defines and controls Export Controlled Information.</i>
32 CFR 2001	National Security Information
<i>Note</i>	<i>Classification authority.</i>
37 CFR 1	Patents
<i>Note</i>	
48 CFR 927	Patents, Data, and Copyrights
<i>Note</i>	
48 CFR 952.227	Protection of Controlled Propriety Data From DOE Financial Assistance Agreements
<i>Note</i>	<i>Protection of controlled propriety data which arises from DOE financial assistance agreements.</i>
DOE G 1430.1D-1	Guide to Scientific and Technical Information Management

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

***Note** Provides guidelines for implementing the procedures related to submitting and ordering STI computer software and the procedures for managing STI contained in other medium.*

DOE O 1430.1D, CRD	Scientific and Technical Information Management
--------------------	---

***Note** Policy and requirements to ensure integration of STI management into Departmental programs and activities.*

DOE O 5650.2B	Identification of Classified Information
---------------	--

Note

OMB Circular A-130	Security of Federal Automated Information Resources
--------------------	---

***Note** Requires agencies to plan in an integrated manner for managing information through its life cycle, recognizing that open and efficient exchange of STI fosters excellence in scientific research and effective use of Federal R&D funds.*

Executive Order 12958	Classified National Security Information
-----------------------	--

***Note** Prescribes a uniform system for classifying, safeguarding, and declassifying national security information.*

17 USC 702	Copyrights
------------	------------

Note

22 USC 2751, et seq.	Nuclear Nonproliferation and Arms Export Control Act
----------------------	--

***Note** Statute which defines and controls arms and weapons related exports including.*

35 USC	Patents
--------	---------

***Note** Law which protects unauthorized disclosure of patentable subject matter.*

42 USC 13201	Energy Policy Act (Public Law 102-486)
--------------	--

***Note** Requires the accelerated transition of technologies and protection of information resulting from research, development, demonstration, and commercial application activities.*

42 USC 2161	Atomic Energy Act, as amended
-------------	-------------------------------

***Note** Policy established the overall requirement that DOE disseminate its scientific and technical information to promote scientific and industrial progress and public understanding.*

42 USC 2201, et seq.	Department of Energy Organization Act
----------------------	---------------------------------------

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

(Public Law 95-91)

Note *Title 1, Section 102 - Requires DOE to disseminate the information resulting from its research and development programs.*

5 USC 552

The Freedom of Information Act, as amended

Note *5 USC 552 (Public Laws 98-487 and 93-502), the Freedom of Information, as amended, establishes the right of citizens to request the information from Federal Agencies and establishes a framework of procedures to implement this right. Also establishes guidelines and regulations for exempting from public disclosure certain categories of information.*

5 USC 552a

Privacy Act

Note *5 USC 552 (Public Law 93-549), Privacy Act of 1974, as amended, established requirements for the collection, maintenance, and dissemination of personal information by Federal Agencies.*

63 USC 15, Sections 3701-3715

Utilization of Federal Technology

Note

Section 4 - Measurement Parameters:

Project Plans contain documentation that Scientific and Technical Information (STI) products resulting from the project are reported. STI planning, budgeting, generation (deliverables), use, and storage are stated in each Project Plan.

STI products are reviewed for technical accuracy, policy requirements, patent, classification and unclassified sensitive information, and worldwide public releasability. Appropriate document control markings are displayed on STI products based on sensitivity level/area of the product.

STI products are submitted to DOE/NV for review within a reasonable period of time to allow DOE/NV reviewers adequate time for appropriate reviews before established publication dates.

STI products are forwarded to the DOE OSTI for dissemination within 30 days of DOE/NV approval of unlimited distribution documents. This is an approved means of making information available to a Wide audience.

The availability of STI to all customer segments, including DOE, U.S. industry, and the public will be maximized by developing implementation plans for electronic submission of

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

STI to OSTI.

Length of turn-around time for review comments by any staff providing the security, patentability, or intellectual property reviews.

Section 5 - Implementation Considerations:

Due to the consolidation of three Management and Operating contractors into one, some transition time will be required to facilitate the management and processing of STI products. Some revisions to procedures may be necessary not only for the management of paper publishing of STI products, but the publishing of information on the World Wide Web.

The set of standards does not flow down to subcontractors.

Implementing documents include: (1) DOE Guide 1430.1-D-1, , Guide to the Management of Scientific and Technical Information, and (2) the NV Procedural Instructions (PI) 96-002, DOE/NV Internet Information Product Approval PI, which specifies implementing procedures for inclusion of informational material on the World Wide Web.

Consideration should be given to developing and implementing an effective office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

The DOE/NV currently relies on attorneys in the Oakland Operations Office to review products for potential patent concerns. The contractor is requested to indicate that a Patents review has been accomplished and if patentable material exists in the STI product. This may be an unfair requirement levied on the contractor unless in-depth training is provided, or an individual knowledgeable about patents is available as a resource.

Section 8 - Training:

These training requirements are identified in DOE Order 5650.2B, Executive Order 12958, 32 CFR Part 2001, 10 CFR Parts 552, and 552a; and will also be contained in an additional portion being drafted in 10 CFR.

Authorized Derivative Classifier training is mandatory for those reviewing products for

1.5.5 Scientific and Technical Information

Latest Revision: 8/22/2002

classification and unclassified sensitive information, e.g., Unclassified Controlled Nuclear Information, and Operation Security information.

Indoctrination and/or training in The Freedom of Information Act and Privacy Acts is another area which requires at least a basic knowledge of the exemptions. applicable to these Acts.

Export Controlled Information training is required. This subject area appears with frequency within technical reports. A training course with certification is being planned for the future. However, before implementation, the responsible parties involved with technical reporting reviews require training.

Section 9 - Vulnerabilities:

Researchers and scientists may wish to share information with colleagues before appropriate reviews have been conducted. Dissemination of sensitive information over the Internet, during conference presentations, and in symposium proceedings or Journal publications prior to conducting appropriate reviews poses a potential vulnerability. Not only is there a possibility of disclosure of classified and sensitive information, but once the information is disseminated, Patents rights may be jeopardized. if Patent disclosure forms have not been filed.

1.6 *Public and Employee Communications*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The Public and Employee Communications work activity consists of the following areas:

Employee Communications: This function involves the start-to-finish production of a variety of employee communications products and programs, from planning and conceptualization through final completion. These products and programs communicate authorized and accurate information of a general, management, or technical nature to all employees. Specific tasks include newsletter production, special management program coordination, video news magazine production, etc.

Public Information: This function involves the provision of accurate and authorized information regarding activities and programs to the media and the public. Specific tasks include responding to media inquiries and requests for information from stakeholders; publicizing strategic plan and associated DOE/NV and contractor accomplishments and activities; producing brochures, fact sheets, exhibits, and videotapes on business capabilities and opportunities; etc.

Community Relations: This function involves the development and maintenance of positive relations with stakeholders, community leaders, civic organizations, and elected officials to promote and preserve the DOE/NV family's reputation and image. Specific tasks include coordinating participation in community events, responding to community requests for presentations or corporate donations, arranging school and civic partnering activities, serving as a liaison with elected officials and business/ community leaders, etc.

Section 2 - Hazards and Management Issues:

No unique hazards exist beyond those encountered in a typical office environment.

Employee Communications: The employee communications program enhances the well-being, productivity, and morale of employees by publicizing policies and activities related to security, safety, and health. The program also helps management implement change processes and improvements by communicating management and quality objectives and initiatives, as well as strategic development goals and accomplishments.

Employees are the best ambassadors of any company or agency; therefore, the credibility and reputation of the DOE/NV family has the potential to be harmed if employees perceive that information is not being communicated to them clearly, completely, accurately, or on a timely basis. Efforts must be made to ensure information receives the appropriate approvals, to ensure it is accurate, unclassified, and nonsensitive.

1.6 *Public and Employee Communications*

Latest Revision: 9/30/1996

Public Information: The survival of the test site work force may depend on the success of efforts to attract new projects to the site. Keeping the public and the media informed of our efforts to do so is an important part of the public information program. Also, the public's perception of the DOE/NV community depends on whether information is conveyed quickly and accurately through approved channels.

The reputation of the DOE/NV family can be seriously damaged if inaccurate or unauthorized information is released to the media or the general public. Precautions must be taken to avoid breach of an employee's privacy during interactions with the media. Care must also be taken not to reveal any classified or sensitive information, especially during a crisis situation.

Community Relations: An effective community relations program is designed to generate goodwill dividends that an organization can call upon when the need for recognition and understanding from the community is tantamount, especially during a crisis. By establishing and maintaining open relationships with government, community, education, and business leaders, we can build support for the DOE/NV family's business objectives and develop a favorable reputation in the community.

Interactions and information exchange with elected officials and community leaders must be handled with extreme sensitivity, or we run the risk of losing support for our business objectives and jeopardizing our favorable reputation as a responsible member of the community.

Section 3 – Standards:

Standard	Title
48 CFR 970.5204 Acquisition Letter 92-8R	Ownership of Records
<i>Note Defines "property" of the government.</i>	
Lesly's Public Relations Handbook	Lesly's Public Relations Handbook
<i>Note Standards from Chapters entitled "Employee Communication" and "Employee Publications".</i>	
42 USC 2011, et seq.	Atomic Energy Act
<i>Note Defines DOE access authorization.</i>	
5 USC 552a	Privacy Act

1.6 *Public and Employee Communications*

Latest Revision: 9/30/1996

***Note** Sets forth restrictions on the collection and maintenance of information and the disclosure of records.*

Section 4 - Measurement Parameters:

Employee Communications: Assess audience satisfaction and adjust products and programs to address reported needs and concerns of audience members.

Public Information: Respond to requests for information (e.g., FOIA) within the mandated turnaround period.

Community Relations: Distribute community funds in accordance with established contribution guidelines.

Section 5 - Implementation Considerations:

Each of the above named functions adheres to requirements that have costs associated with compliance but which are not cited as standards addressing management issues.

Printing and reproduction regulations guide the production of employee communication, public information, and community relations vehicles and tools as addressed in WBS 1.5.4 "Printing & Publishing."

Computer network and other telecommunications regulations that govern some of the electronic means by which employee communications and public information messages are distributed are covered in WBS 1.4.1 "Asset Management & Planning."

Each previously mentioned function adheres to the following professional guidelines which provide suggested guidelines and standards for producing and distributing accurate, authorized communications in a timely, efficient, and ethical manner:

The Associated Press "Stylebook and Libel Manual"

The Public Relations Society of America's "PRSA Code of Professional Standards for the Practice of Public Relations"

The Society for Technical Communication's "STC Ethical Guidelines for Technical Communicators"

Consideration should be given to developing and implementing an effective office safety

1.6 *Public and Employee Communications*

Latest Revision: 9/30/1996

program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.7.1 Regular Audit

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Internal Audit is an independent appraisal and control function that examines and evaluates the adequacy and effectiveness of other controls. Management is assisted by furnishing analysis, appraisals, and counsel concerning the activities audited and promoting effective control at a reasonable cost.

Work activity is representative of that performed at a publicly listed corporation. Commercial auditing standards are described in the American Institute of Certified Public Accountants (AICPA) Code of Professional Conduct and the Institute of Internal Auditors Codification of Standards for the Professional Practice of Internal Auditing (Red Book). Both sets of standards are incorporated within the GAO Government Auditing Standards (Yellow Book).

The organization participates in the Cooperative Audit Strategy with the Office of the Inspector General (OIG) and the DOE/NV field office. The OIG uses a risk assessment methodology as a basis for planning audits. The OIG also relies on the work of others; specifically, the work of the Management & Operations (M&O) contractor's internal audit staff. The audit strategy requires the OIG to establish a tracking system to provide the information needed to produce a coordinated OIG audit plan. This tracking system should prevent duplicate audit coverage.

This work activity begins with a risk assessment of all areas as described in the IG audit manual relating to audits of both integrated and maintenance and operation (M&O) contractors. Based on the results of the risk assessment, an annual audit plan is prepared and routed to the DOE/NV for their review and approval. The approved plan is then provided to the IG. The scheduled audits will be either financial or operational in nature and will include the following general audit objectives.

Additional work activities are detailed as follows:

- Determine compliance with laws, regulations, and contract provisions that govern the acquisition, management, and use of resources, or have a material effect on financial information.
- Determine whether audited functions are being managed efficiently and effectively, and within the terms of the contract.

1.7.1 Regular Audit

Latest Revision: 9/30/1996

- Determine whether programs, projects, and other activities are functioning as intended and are accomplishing their stated purpose or objective.
- Determine whether internal controls are adequate to prevent and/or detect fraud, waste, and abuse.
- Determine whether incurred costs are allowable. Identify and report unallowable costs.

Full and complete access is provided to all records, physical properties, and personnel relevant to the area under review. All activities of the M&O and its subcontracts are subject to audit. Individual audit reports and an annual summary of audits performed are provided to both the OIG and the DOE/NV Financial Compliance and Review Division (FCRD). Other work activities are described in the following related packages:

- WBS 1.7.2 - Internal Audit-Vendor Audits
- WBS 1.7.3 - Internal Audit-Special Investigations.

Section 2 - Hazards and Management Issues:

The internal audit personnel can be potentially exposed to the hazards identified for the other work activities at sites that may be visited.

Management issues related to the recommendations in section 5.0 are as follows:

Evaluating the operational structure of relationships between the IG, DOE/NV and Internal Audit.

Determining responsibility to evaluate, maintain, promote, and recommend the establishment of cost-effective accounting and administrative internal controls. Responsibilities include reporting internal control deficiencies and the results of Internal Audit's deficiency follow-up to BN, DOE/NV, and OIG management.

Establishing a higher degree of effectiveness and efficiency within the function.

The broader management issues pertaining to internal audit work activity are similar to those publicly listed corporations must satisfy in regard to stockholders, board of directors (audit committee), and Security Exchange Commission requirements and/or regulations. Management issues/requirements relate to the following general areas:

1.7.1 Regular Audit

Latest Revision: 9/30/1996

The system of managing government operations/programs is dependent on an elaborate structure of relationships among all levels of government. Officials and company officials who manage these operations/programs need to present an account of their activities to the public and to other branches of the government.

Contractors that are entrusted with public resources are responsible for establishing and maintaining cost effective accounting and administrative controls to ensure that appropriate goals and objectives are met; resources are safeguarded; laws and regulations are followed; and reliable financial and operational data is obtained, maintained, and fairly disclosed.

Contractor audit activities are an essential element of public accountability. Audits provide an independent assessment of operational and financial information reported by management.

Section 3 – Standards:

The Necessary & Sufficient set of standards relate to the Internal Audit work activities that cover the auditors' professional qualifications, the quality of audit effort, and the characteristics of professional and meaningful audit reports and the interrelationship with the DOE IG and the DOE field offices. The standards are as follows:

Standard	Title
48 CFR 970.5204-9(h) <i>Note</i>	Internal Audit
48 CFR 970.5204-DOE Acquisition Letter 90-3R <i>Note</i>	Clarification of DEAR 970.5204-9(h)
General Accounting Office (GAO) Government Auditing Standards (Yellow Book) <i>Note</i>	GAO Government Auditing Standards (Yellow Book)

Section 4 - Measurement Parameters:

The recommended measurement parameters for BN Internal Audit activities are:

Management accepts and implements Internal Audit recommendations.

Cost savings are identified in the area of cost avoidance or recovery.

1.7.1 Regular Audit

Latest Revision: 9/30/1996

Positive changes are seen in the department(s) after implementation of effectiveness and efficiency recommendations.

Section 5 - Implementation Considerations:

Most of the requirements and standards placed on the internal audit activity are derived from laws or regulations that must be followed. However, as required by the Cooperative Audit Strategy, the DOE FCRD has the responsibility of providing oversight of the BN Internal Audit function as a means of assuring the IG that the audits performed adhere to the standards and regulations. As such, the DOE FCRD has established local requirements to allow them to fulfill this IG requirement.

With the advent of a new contract and changes on how the organization conducts business, these local requirements need to be assessed in a timely manner by both DOE FCRD and Internal Audit as a means of identifying the most effective and efficient way of working together.

Under the Federal Acquisition Streamlining Act (Public Law 103-355), the DOE regulations for maintenance and operations contractors have been modified to allow the contractor to follow "best business practices" and then document the rationale for decisions made using these practices. As such, we propose the following modifications to DOE FCRD local requirements.

Current Practice:

Local practice is to route audit programs for regular audits to DOE FCRD for their review and approval. No other DOE M&O sites have this requirement.

Current practice impinges on the independence of BN Internal Audit and Performance Based Contracting where the contractor is responsible for the work, yet DOE FCRD is in the decision loop.

Recommendation:

DOE FCRD and DOE/IG receive notification of a pending audit. All organizations will be requested to provide input of specific questions or concerns they would like examined in the audit. This input will then be included in the audit program.

It would be more efficient to have representatives from DOE FCRD and DOE/IG attend the

1.7.1 Regular Audit

Latest Revision: 9/30/1996

opening audit conference and suggest any changes to the audit program before the audit process begins. By modifying current practice to request DOE audit changes be made at the opening audit conference, delays in conducting the audit will be avoided.

Savings:

DOE FCRD will realize cost savings. The BN Audit group will realize greater time efficiency which will save an estimated 10 hours a month audit time. This means that BN Internal Audit can save approximately \$5000 a year and spend the 10 hours a month performing additional audits.

Current Practice:

Corrective action taken to correct audit finding deficiencies is followed up and assessed by both the Internal Audit group and by DOE FCRD. The DOE FCRD requests, through Internal Audit, supporting documentation which documents the corrective actions taken by the auditee. This is a duplication of work. In addition, DOE FCRD routes the corrective action plans with supporting documentation to the appropriate DOE organization for concurrence that the audit findings can be closed. This is duplication of work for Internal Audit and DOE FCRD.

It is Internal Audit's practice to document in the audit report affected management's response to both the audit finding and auditor's recommendations. The audit report also includes Internal Audit's comments regarding the viability of management's response to correcting audit finding deficiencies. This process is detailed in the BN Internal Audit Manual.

Past Internal Audit practices include providing the DOE FCRD with a monthly report on the status of open audit findings and entering deficiencies into the Automated Deficiency Tracking System (ADTS). As a result, there is a duplication of work by Internal Audit. Although the ADTS system is being replaced the CREATES system, Internal Audit may continue to duplicate work.

As in the previous "Current Practice," DOE is in the decision loop affecting the way Internal Audit complies within Performance Based Contracting.

Recommendation:

DOE FCRD should discontinue current open audit finding close-out practices. Instead,

1.7.1 Regular Audit

Latest Revision: 9/30/1996

DOE FCRD should rely on the audit reports and the Internal Audit group's follow-up process to close out open audit findings. Additional follow-up by the DOE FCRD can be handled on an exception basis. For example, the DOE FCRD can request necessary supporting documentation and/or clarification. It is noted that the DOE FCRD has full access to Internal Audit's work papers.

When the CREATES system is established, the audit report deficiencies are planned to be entered into and tracked through the system. The "monthly open audit status" report provided to DOE FCRD should be discontinued if CREATES will provide DOE FCRD with the appropriate status of open findings and supporting detailed information.

Savings:

Cost Savings would be primarily realized by the DOE FCRD and other impacted DOE organizations that evaluate corrective actions. However, it is estimated that 20 hours a month of Internal Audit time would be freed up at an estimated cost savings of approximately \$10,000 a year. This time could be used to perform additional audits.

Summary - Implementation Considerations:

Effectiveness and efficiency changes to DOE FCRD local requirements are suggested to establish greater independence for the Internal Audit organization. Supporting documentation includes Acquisition Letter 90-3R and the GAO Government Auditing Standards (Yellow Book). Best Industry practices are incorporated within the stated standards. Only DOE FCRD approval is required to implement all recommendations.

Consideration should be given to developing and implementing a comprehensive office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

1.7.1 Regular Audit

Latest Revision: 9/30/1996

Section 9 - Vulnerabilities:

N/A

1.7.2 Vendor Audit

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Internal Audit is an independent appraisal and control function. Internal Audit performs various types of vendor (contract) audits when requested by project managers, procurement and support services.

Internal Audit's role is to provide professional advice on accounting and financial matters, and to assist in negotiating, awarding, administering, repricing, and settling contracts. When dealing with vendors, Internal Audit's recommendations are advisory in nature.

The objective of vendor auditing is to ensure that prices paid for goods and services are fair and reasonable. A fair and reasonable price is one that is fair to both parties to the contract. Vendor audits are performed before award, during performance, and after completion as described below.

Before Subcontract Award

- **Cost or Pricing Data:** Review the subcontractor's "cost or pricing data." This information supports their price proposal. This type of audit represents the majority of all vendor audits performed by Internal Audit.
- **System Reviews:** Review various subcontractor systems, when necessary, to insure they are adequate to support the requirements of the subcontract before awarding. Examples of areas that may be subject to review are the subcontractor's accounting, purchasing, estimating, or payroll systems. These reviews are performed by performance assurance personnel in coordination with audit personnel.

During Subcontract Performance

- **Incurred cost reviews:** This type of audit is performed to determine costs incurred.
- **Repricing of the original subcontract:** This type of audit is performed to account for changes or claims.
- **Defective Pricing Reviews:** This type of audit is performed to ensure that the "cost or pricing data" supporting the original subcontract is current, accurate, and complete at the time of negotiations.

After Subcontract Completion

1.7.2 Vendor Audit

Latest Revision: 9/30/1996

- Historical Cost Audit: This type of audit is performed to ensure that claimed costs are allowable. Historical cost audits are usually performed annually.
- Subcontract Audit Closing Statement: This type of audit is performed as a means of issuing a final statement on the total allowable costs.

Vendor auditing performed is similar to the types of vendor audits performed at publicly listed corporations. Commercial auditing standards are based the following standards which are incorporated in the "GAO Government Auditing Standards (Yellow Book):"

- American Institute of Certified Public Accountants (AICPA) "Generally Accepted Auditing Standards"
- Institute of Internal Auditors (IIA) "Codification of Standards for the Professional Practice of Internal Auditing (Red Book)."

A major difference in government procurement is the specificity of types of costs that are allowable and types of financial systems that are required under the Code of Federal Regulations.

Other related work activities are described in the following documentation packages:

- WBS 1.7.1 - Internal Audit - Regular Audits
- WBS 1.7.3 - Internal Audit - Special Investigations

Section 2 - Hazards and Management Issues:

There are no unique hazards beyond those encountered in any office environment.

The management issues related to this work activity are as follows:

Vendor expenditures represent a significant portion of costs.

Section 3 – Standards:

The Necessary and Sufficient set of standards relate to Internal Audit work activities that cover the auditors' professional qualifications, the quality of audit effort, the characteristics of professional and meaningful audit reports, and the interrelationship with the DOE Inspector General and the DOE field offices. Specific standards that relate to vendor audits

1.7.2 Vendor Audit

Latest Revision: 9/30/1996

are the Federal Acquisition Regulations (FARs), which state the policies and rules that govern contract pricing and Part 15, which covers general requirements regarding negotiated contracts. Specific requirements and/or standards covering negotiated prime contracts and subcontracts are presented in various subparts and sections. Specific requirements and/or standards that apply to vendor auditing are contained within the following subparts and sections.

Standard	Title
48 CFR 15.804 <i>Note</i>	Cost or Pricing Data
48 CFR 15.805 <i>Note</i>	Proposal Analysis
48 CFR 15.806 <i>Note</i>	Subcontract Pricing Considerations
48 CFR 30 <i>Note</i>	Cost Accounting Standards Administration
48 CFR 31 <i>Note</i>	Contract Cost Principles and Procedures

Section 4 - Measurement Parameters:

The recommended measurement parameters for vendor audits are as follows:

- Vendor "Cost or Pricing Audits:" The performance measurement for conducting a vendor "cost or pricing data" audit is based on comparing the actual time of performance to the required turn-around time established by the contracting officer. However, note that measuring performance in a meaningful manner is dependent on receiving adequate lead time (e.g., Defense Contractor Audit Agency (DCAA) requires a minimum of 30 days lead time) and the adequacy of the submitted "cost or pricing data." The subcontractor must also have an adequate financial/accounting, estimating, and procuring systems in place to support the submitted "cost or pricing data."
- Additional Types of Vendor Audits: The performance measurement for conducting various other types of vendor audits is based on comparing the actual time of performance to the required turn-around time established by the contracting officer. However, note that measuring performance in a meaningful manner is dependent on receiving adequate lead time and reasonable completion dates, taking into consideration the complexity of the audits.

1.7.2 Vendor Audit

Latest Revision: 9/30/1996

- Internal Audit will start and complete the vendor audit in 30 days or less.

Section 5 - Implementation Considerations:

The specific requirements and standards placed on the internal audit activity relating to vendor audits are derived from the FAR regulations. The general auditing standards are incorporated in the Yellow Book which is mandatory. However, as required by the Cooperative Audit Strategy, the DOE Financial Services Division (FSD) is responsible for providing oversight of the Internal Audit function. This is a means of assuring the IG that the audits performed adhere to standards and regulations. As such, the DOE FSD has established local requirements to allow them to fulfill this IG requirement.

With the advent of changes due to a new performance based contract, local requirements need to be assessed in a timely manner by both DOE FSD and Internal Audit as a means of identifying the most effective and efficient way of working together. Current practice is as follows:

DOE FSD requires that Internal Audit forward all requests received from Procurement for an audit of a subcontractor's "cost or pricing data" to them for determination on whether an audit request should be forwarded to the DCAA or if it should be done by Internal Audit.

Using DCAA when the subcontractor has prior or current DCAA coverage is preferred. DCAA is also mandatory when, for confidentiality, the subcontractor does not wish to disclose data to BN. In both cases, only DOE can request DCAA support.

Processes are working well and have been improved by permitting Internal Audit to perform cost or pricing audits in cases where DCAA support is not available. Internal Audit can perform an audit in three to five days versus the 30-day lead time required by DCAA. This enables Procurement to receive the necessary audit support much more quickly.

Consideration should be given to developing and implementing a comprehensive office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

1.7.2 Vendor Audit

Latest Revision: 9/30/1996

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

1.7.3 *Special Investigations*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Internal Audit is an independent appraisal and control function. Special investigations are conducted at the request of DOE/IG, management, or are independently identified and undertaken by Internal Audit. Special Investigations encompass fraud, waste, abuse, defalcation, misappropriation, and other fiscal or non-fiscal irregularities. Special investigations consist of performing extended procedures and techniques to determine whether fraud, waste, abuse or other irregularities have occurred. The objective of a special investigation is to gather sufficient evidential matter to reach a conclusion on the allegation of suspected fraud, waste, abuse, or other irregularities.

One of the responsibilities of management is the detection of defalcation, misappropriation, and other irregularities. The primary area of special investigations relates to fraud. Fraud encompasses fiscal irregularities that include, but are not limited to, the following:

- Any dishonest or fraudulent act,
- Forgery or alteration of any document or account,
- Misappropriation of funds, securities, supplies, or other assets,
- Impropriety in the handling or reporting of money or financial transactions,
- Profiteering as a result of insider knowledge or disclosing to other persons activities contemplated by the company,
- Accepting or seeking anything of material value from vendors or persons providing services/material to the company,
- Destruction or disappearance of records, furniture, fixtures, or equipment,
- Use of government-funded resources including labor, equipment, and materials for non-government, private purposes.

Typical fraud examinations involve the following attributes and characteristics:

- Fraud examinations are adversarial in nature,

1.7.3 *Special Investigations*

Latest Revision: 9/30/1996

- Fraud examinations are nonrecurring and are conducted only with sufficient predication,
- Fraud examinations are conducted to reach a conclusion relating to the specific allegations and to affix responsibility,
- The scope of fraud examinations includes the identification and examination of internal supporting documentation, obtaining and reviewing external documentation (e.g., public records, correspondence), conducting internal and external interviews, obtaining legal counsel opinions, etc.,
- The results of all special investigations performed by Internal Audit are reported to executive management. Results of special investigations in the areas of fraud, waste, and abuse are reported to executive management, DOE Financial Services Division, who, in turn, reports the results to the DOE/IG.

Other work activities which are not included in this documentation package are:

- WBS 1.7.1 - Internal Audit - Regular Audits
- WBS 1.7.2 - Internal Audit - Vendor Audits

Section 2 - Hazards and Management Issues:

Hazards associated with internal audit work activities are generally those encountered in any office environment. There are no environment, safety, or health hazards specific to Internal Audit.

The management issues related to this work activity are as follows:

Develop awareness in all management levels of the responsibility to report any suspected irregularities,

Establish a nonbiased and uniform method of performing special investigations,

Impact on employee morale,

Impact on costs,

Adverse publicity.

1.7.3 Special Investigations

Latest Revision: 9/30/1996

Section 3 – Standards:

Standard	Title
48 CFR 970.5204-59	Whistleblower Protection for Contractor Employees
<i>Note This citation implements 10 CFR 708, the DOE policy requiring reporting of waste, fraud, and abuse and protection of whistleblowers.</i>	
DOE O 2030.4B	Reporting Fraud, Waste, and Abuse to the Office of the Inspector General
<i>Note</i>	
General Accounting Office (GAO) Government Auditing Standards (Yellow Book)	General Accounting Office (GAO) Government Auditing Standards (Yellow Book)
<i>Note</i>	

Section 4 - Measurement Parameters:

The recommended performance measurements for Internal Audit – Special Investigations are:

- Closure as evidenced by the issue of an Internal Audit memo or report.
- Recoveries and fines collected as a result of special investigations, as well as cost savings realized from the adoption of more effective and efficient work processes. This includes both property and money.

Section 5 - Implementation Considerations:

Consideration should be given to developing and implementing a comprehensive office safety program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

1.7.3 Special Investigations

Latest Revision: 9/30/1996

Section 9 - Vulnerabilities:

N/A

1.8 *Administrative Systems and Controls*

Latest Revision: 8/22/2002

Section 1 - Work Activity:

Administrative Systems and Controls are systems that are put in place to accomplish the administrative goals of the organization. The types of activities vary, but tend to focus on the definition of roles, responsibilities, communications protocol, and processes through which work throughout the DOE Nevada complex is accomplished. For these purposes the work shall be divided into Contract Oversight, and New Project Acceptance.

Contract Oversight includes those activities required to define, track, evaluate, and make payment on the work done by DOE Nevada's contractor organizations. These contracts encompass all of the contracted work done in the NV complex, including, but not limited to, the Performance Based Management and Operating Contracts and the Support Services Contract.

New Project Acceptance includes those activities required to accept, site, negotiate, and commit to work to be done by the DOE Nevada Complex for any new projects.

This activity includes contractor, national laboratory, other federal agencies and other user organizations' participation in executing authorization and activity agreements.

This activity includes contractor, national laboratories, other federal agencies, and other user organizations' participation in DOE/NV planning processes, including those established for DOE Work Authorization development as described in the DOE/NV planning documents (Directives System).

This work activity includes a management system for communicating lessons learned to appropriate people within the DOE/NV community or organizations and DOE Department wide organizations consistent with Department policy.

This activity includes participation in the DOE and DOE/NV processes of development of sound DOE and DOE/NV Directives.

This activity includes contractor, national laboratories, and other federal agencies, and other user organizations' requirements to participate consistent with DOE/NV complex wide Work Smart Standards.

This activity includes contractor, national laboratories, other federal agencies, and other user organizations' requirements to participate consistent with DOE/NV Change Review Group Processes establish to coordinate and control by consensus, and the DOE/NV

1.8 *Administrative Systems and Controls*

Latest Revision: 8/22/2002

complex-wide Work Smart Standards.

This activity includes contractor, national laboratories, other federal agencies, and other user organizations' participation in DOE/NV planning processes, including those established for DOE Work Authorization development as described in the DOE/NV planning documents (Directives System).

This work activity includes an oversight process of business management systems, which are conducted jointly by M&O Contractors (currently only Bechtel Nevada, Inc.) and DOE/NV, consistent with Department policy. It also includes an ES&H oversight process conducted by DOE/NV on contractors and laboratories wherein such organizations are expected to implement an internal self-assessment program in accordance with Quality Assurance requirements.

This work activity includes: Planning and Budget Prioritization of Work Activities.

This work activity includes: Planning and Budget Prioritization of ES&H Activities, Contractor Performance Administration, Work Controls, Readiness Reviews, and Safety Management Systems Maintenance.

Section 2 - Hazards and Management Issues:

Appropriate DOE/NV Management planning mechanisms must integrate contractor/user planning of new work and changes to existing work to ensure appropriate DOE/NV involvement at certain points in time and changes to existing work to ensure information is available so DOE responsibilities can be fulfilled. This planning involvement includes DOE safety reviews prior to DOE authorization to proceed with work (or significant changes to existing work), reviews associated with the control and protection of real estate, DOE assignment of responsibility for safety coordination, identification of hazards and controls associated with real estate to facilitate emergency response actions, access to information necessary to facilitate DOE/NV's responsibility for deconfliction of plans and schedules of certain work at NTS, and provide an interface mechanism to facilitate accounting and recovery of proportionate infrastructure support costs from users of DOE real estate.

In order for DOE/NV and Contractors to integrate planning, appropriate contractor participation in DOE/NV processes can ensure overall economy and efficiency and improvement of quality of DOE/NV directives, especially contractor requirements documents.

1.8 Administrative Systems and Controls

Latest Revision: 8/22/2002

The planning and documentation of performance agreements and joint evaluation of M&O contractor performance in the area of business management functions for the benefit of DOE senior management and Headquarters as a matter of policy are considered a management issue. In addition, the DOE/NV's ES&H Oversight responsibilities as a matter of DOE Policy DOE P 450.5 are considered a management issue.

The need for a prioritization system and defined interface relationship between DOE/NV and contractors is considered a safety related management issue.

Implementation of DOE/NV processes regarding: Planning and Budget Prioritization of ES&H Activities, Contractor Performance Administration, Work Controls, Readiness Reviews, and Safety Management Systems Maintenance are considered management issues which demand efficient process definition, control, and execution.

Section 3 – Standards:

Standard	Title
NV O 124.X, CRD	Planning and Budget Prioritization of Work
<i>Note Added by Change Request 2000-012, 8/22/2000.</i>	
DOE M 140.1-1B, CRD	Interface With the Defense Nuclear Facility Safety Board
<i>Note Added by BCR 2000-013. Revised by Change Request 2001-012a - 8/13/01.</i>	
DOE M 251.1-1A	Directives System Manual
<i>Note Added by Change Request 99-017, also added to B2 list.</i>	
DOE O 251.1A, CRD	Directives System Order
<i>Note Added by Change Request 99-017, also added to B2 list.</i>	
NV M 210.X, CRD	Contractor Performance Administration
<i>Note Added by Change Request 2000-014. Added to B2 and B3.</i>	
NV M 220.XB, CRD	NNSA/NV Oversight Management System
<i>Note Added by Change Request 1999-021, also added to B2 and B3. Revised by Change Request 2000-007, 3/15/2000. Updated by Change Request 2000-014, 08/22/2000. Changed by BCR 2001-008 - 2/26/01. Revised by Change Request 2002-003.</i>	
NV M 251.1-1B, CRD	NNSA/NV Directives System Manual
<i>Note Added by Change Request 1999-017. Also added to B2 list. Revised by BCR 2002-011, 4/1/2002.</i>	

1.8 Administrative Systems and Controls

Latest Revision: 8/22/2002

NV M 410.XA, CRD

Task Plan and Change Control Process

Note Added by BCR 1998-014. Changed by BCR 2000-012.

Through its application, the manual provides for the establishment of a baseline and then a controlled process through which changes in expectations and performance are documented for management. This mitigates the risk that changes will be made in which management is not a participant and that activity which would create additional risks for management are either discouraged, or given the opportunity to be aired ahead of time.

NV M 412.X1B, CRD

Real Estate/Operations Permit

Note Added by BCR 99-008 Addendum 1. Revised by Change Request 2000-006, 3/15/2000. Updated by Change Request 2000-014, 08/22/2000. Added on B2 and B3.

Provide information needed by organizations to economically and efficiently interface with DOE/NV's planning process established for new work and changes to existing work.

NV M 412.X2, CRD

Readiness Reviews

Note Added by Change Request 2000-014, 8/22/2000. Add to B2 and B3.

NV M 412.XA, CRD

Project Screening and Location Approval Process

Note Added by BCR 1998-014. Added to B2 and B3.

This establishes a series of reviews and checkpoints through which all work associated with the Nevada Test site must pass. This allows for assurances that the work is within the scope of work allowable on the NTS, that the work will not conflict with existing work at the NTS, and that the organization as a whole gets warning that work is coming to the NTS. This gives management a chance to reject the work if it contains risks or elements that they are not willing to accept and provides a forum for them to become aware of the work, thus allowing them to implement their normal system of controls. Updated by Change Request 2000-014, 08/22/2000.

NV M 450.3XB, CRD

Work Smart Standards Manual

Note Added by Change Request 2000-001. Updated by Change Request 2000-014, 08/22/2000. Changed by BCR 2001-009 - 4/3/01. Revised by BCR 2002-010. Also added to B2 and B3.

NV M 450.XA, Chg 1, CRD

Authorization and Activity Agreements for

1.8 Administrative Systems and Controls

Latest Revision: 8/22/2002

Facilities and Operations

Note Revised by Change Request 99-015, also added to B2 and B3. Updated by Change Request 2000-014, 08/22/2000.

NV O 230.XA, CRD

Lessons Learned Program

Note Added by BCR 1999-014. Standard adopted to mitigate the management issue. Revised by BCR 2001-001. Also added to B2 and B3 List.

NV O 412.X3A, CRD

Work Control

Note Added by Change Request 2000-014, 8/22/2000. Added to B2 and B3. Changed by BCR 2001-007, 2/26/01.

NV O 450.4, CRD

Safety Management Systems Maintenance

Note Added by Change Request 2000-014, 8/22/2000. Added to B2 and B3.

NV O 450.X

Nevada Test Site Access and Area Control

Note Added by BCR 2002-019. Also added to B2 and B3.

Section 4 - Measurement Parameters:

Ideally Management Systems and Controls contain elements in which value added controls are added, and non-value added controls are dropped. The art of management involves tailoring or fixing these controls so that maximum benefit is gained from a minimum expenditure. As a result, the costs and time associated with the implementation should be measured and compared with the gains received.

Section 5 - Implementation Considerations:

One element of management systems is the need to continuously evaluate and update them. The standards selected in this system are rather fluid, and their content may change over time.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Management systems and controls reflect the beliefs and desires of the current management team. Should these individuals change, there is a possibility that the management controls system within DOE/NV might also change.

Section 8 - Training:

1.8 *Administrative Systems and Controls*

Latest Revision: 8/22/2002

Employees need to be trained in the use of these standards prior to their implementation. Management Systems need to be fed information by a workforce who understands what information is sought in order to be effective.

Section 9 - Vulnerabilities:

N/A

1.9 Classification of Information

Latest Revision: 8/14/2002

Section 1 - Work Activity:

This activity includes the identification of information that requires protection in the interest of national security; the review of documents to make such determinations; the review of documents for declassification; and the training and certification of derivative classifiers and Unclassified Controlled Nuclear Information (UCNI) Reviewing Officials.

Section 2 - Hazards and Management Issues:

The prevention of the inadvertent release of classified information contained in information resources; I.e., reports, briefings, Intranet/Internet, etc.

Section 3 – Standards:

Standard	Title
10 CFR Part 1017	Identification and Protection of Unclassified Controlled Nuclear Information
<i>Note Added by BCR 2001-002.</i>	
DOE M 471.1-1	Identification and Protection of Unclassified Controlled Nuclear Information (Does not have a Contractor Requirements Document, see Directive DOE O 471.1A).)
<i>Note Added by BCR 2001-002.</i>	
DOE M 475.1-1	Identifying Classified Information (Contractor Requirements Document)
<i>Note Added by BCR 2001-002.</i>	
DOE O 471.1A	Identification and Protection of Unclassified Controlled Nuclear Information (Contractor Requirements Document)
<i>Note Added by BCR 2001-002.</i>	
Executive Order 12958	Classified National Security Information (and predecessor executive orders)
<i>Note Added by BCR 2001-002.</i>	
42 USC 2011, et seq.	Atomic Energy Act of 1954, as amended

1.9 *Classification of Information*

Latest Revision: 8/14/2002

Note Added by BCR 2001-002.

Section 4 - Measurement Parameters:

See Performance, Objectives, Measures and Expectations (POMEs)

Section 5 - Implementation Considerations:

There are approximately 600 DOE classification guides, topical guides, UCNI guidelines and bulletins either available on the Classification Guidance System CD-ROM or in hard copy and made available by DOE to assist in implementing the requirements identified in number 3 above.

Section 6 - Work Environment:

Office environment must meet current government security requirements for processing information up to the SECRET RESTRICTED DATA level.

Section 7 - Uncertainties or Issues:

With every new administration in Washington there is a possibility of a new Executive Order on Classified National Security. The potential for enhanced security regulations may be implemented by DOE in the near future in response to incidents at the National Laboratories.

Section 8 - Training:

Classification Officer and Derivative Declassifiers are required to be trained by the DOE Headquarters Office of Nuclear and National Security Information. DOE/NV and BN Classification Officers train Derivative Classifiers and UCNI Reviewing Officials.

Section 9 - Vulnerabilities:

Compromise of Restricted Data and Classified National Security Information with damage to the national interest.

2.1.2 PCB

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Polychlorinated Biphenyls (PCBs) were offered by manufacturers for use in applications where stable, fire-resistant, heat-transfer properties were necessary. They were primarily used in transformers where their chemical and physical properties were a desired attribute. In 1977, the commercial production of PCBs ceased after studies indicated that they caused reproductive effects and other disorders in laboratory animals. Since that time, the use, storage and disposal of PCBs and the containers or equipment in which they are used or stored have been regulated.

The only PCB regulated items under DOE/NV control are capacitors located in Area 27 of the Nevada Test Site (NTS). While these items are in use and not leaking, there is no requirement to take them out of service or retrofill and reclassify them. The only other PCB items that will be managed by DOE/NV are those newly-discovered wastes characterized as containing PCBs. Items found to contain RCRA wastes in addition to PCBs are managed as hazardous waste, as described in WBS element 2.1.3. DOE/NV also accepts, and arranges for disposal, PCB items from non-DOE users of the NTS.

Generally, work activities associated with PCB management are broken down into five responsible areas. The areas of concern are characterization, marking, inspection, storage, and disposal.

Characterization

Items suspected of containing PCBs must be characterized to determine the level of concentration.

Marking

Each item containing greater than 50 parts per million must be marked accordingly.

Inspections

PCB items in service or in storage prior to disposal are inspected on a regular schedule to discover spills or leaks. If any spill or leak is discovered, Environmental Protection Agency (EPA) regulations specify repair and clean-up standards. Actual clean-up and repair work is covered under the WBS element for Construction (2.8) or Maintenance (3.4) depending upon the scope of work and the facility. Standards selected in this WBS are applied for the actual clean-up effort in other WBSs to ensure meeting appropriate TSCA requirements, e.g., the level of cleanliness required-how clean is clean enough.

On-Site Storage Prior To Disposal

2.1.2 PCB

Latest Revision: 9/30/1996

PCB items and PCB oil stored for use, reuse, or disposal must meet applicable storage requirements. At the Nevada Test Site, PCBs are stored in a building in Area 6 which is specially constructed to prohibit the potential release of PCBs to the environment. PCB items may be stored in this facility for up to one year.

Disposal

The transportation and disposal of PCBs are regulated much like hazardous waste. PCBs are transported offsite using a hazardous waste manifest, and an off-site contractor disposes of them by incineration at a permitted facility.

Section 2 - Hazards and Management Issues:

PCBs present a health hazard to workers. Exposure to PCBs may cause skin and eye damage, and are considered carcinogenic.

Environmental hazards are the result of the improper handling of spills and leaks to the environment. Long term effects to animals contacting or ingesting materials contaminated with PCBs is the primary concern.

Management issues beyond those specified above concern the proper disposal of the material once it leaves the site. Assessment of facilities incinerating PCB liquids and disposing of PCB items have been performed.

Section 3 – Standards:

Standard	Title
40 CFR 761	Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

***Note** Regulated under the Environmental Protection Agency's Toxic Substance Control Act.*

Nevada Administrative Code (NAC) 444.940 - 444.960	Polychlorinated Biphenyl (PCB)
---	--------------------------------

***Note** DOE/NV only temporarily stores PCBs prior to disposal and is not subject to these requirements. All DOE/NV generated PCB waste is disposed at facilities permitted in states under the auspices of the federal law.*

Section 4 - Measurement Parameters:

2.1.2 PCB

Latest Revision: 9/30/1996

PCBs are competently managed and corrective measures are effectively implemented once they are identified.

Section 5 - Implementation Considerations:

DOE/NV should consider the removal of the PCB capacitors in Area 27. This could result in discontinuing the PCB program and a cost savings. Maintenance of the temporary storage facility might no longer be required.

Section 6 - Work Environment:

Work activities may take place either indoors or outdoors.

Section 7 - Uncertainties or Issues:

Tonopah Test Range (TTR) operations may be assigned to DOE/NV on 10/31/96. PCB items may be present which require the implementation of a PCB management program.

Section 8 - Training:

Federal or state of Nevada PCB training requirements are not mandated.

Section 9 - Vulnerabilities:

An assessment of all known sources of PCBs and PCB items was performed in the early 1980's. Much work has taken place over the years to dispose of PCBs and relieve the NTS of the problem and liability. Most personnel believe that PCBs no longer exist. However, it is possible, although the probability is low, that additional sources may exist due to the size of the NTS and the variety of operations which have taken place over 40 years. With workforce downsizing, management must recognize the possibility of an unknowing and untrained workforce.

2.1.3 Hazardous Waste

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Hazardous waste management at the following U.S. Department of Energy Nevada Operations Office (DOE/NV) operated facilities which include all DOE/NV sponsored remediation sites, consists of the "cradle to grave" tracking process prescribed by the Resource Conservation and Recovery Act (RCRA), which includes requirements for analytical sampling and analysis, waste characterization, and waste disposal:

Wastes whose hazardous constituents are not regulated under RCRA (polychlorinated biphenyls, asbestos, radioactive material) will be managed per the federal, state, and local laws indicated in the following Work Breakdown Structures:

- 4.3 - Medical Services
- 2.1.2 - PCB Waste
- 2.1.4 - Solid Waste
- 2.1.5 - Transuranic Waste
- 2.1.6 - Mixed Waste
- 2.1.7 - Low-Level Waste

The hazardous waste management process can be summarized as follows:

- Identification: Discarded materials (out of service date, waste products, etc.) identified by waste generators.
- Characterization: Determine constituents of waste stream by process knowledge. If process knowledge is inadequate, then coordinate the necessary qualified personnel to arrange sampling and analysis activities to ensure the waste is accurately and adequately characterized.
- Accumulation: Waste (discarded material) is placed in a Satellite Accumulation Area (SAA) for temporary accumulation after being characterized. The SAAs should be near the point of generation, and must be under control of the generator.
- Transport: The waste is collected from the SAAs and transported to the RCRA compliant

2.1.3 Hazardous Waste

Latest Revision: 9/30/1996

storage facility.

- Storage: The waste is stored at the RCRA compliant storage facility and is shipped off-site for treatment or disposal within the required time frame. The waste is tracked according to the date brought onto the RCRA storage facility, both by database and by logbook.
- Disposal: The waste is sent off-site to a commercial Treatment/Storage/Disposal Facility (TSDF) for disposal.

Section 2 - Hazards and Management Issues:

The hazards include chemical exposures to workers during transfer and transport activities from leaks or releases of the material, and physical exposures from fires or explosions. Hazards to the environment include soil contamination, air quality degradation, and chemical exposure to wildlife, resulting from leaks or releases of the material.

Of management concern is the potential for fines, litigation, etc. Fines may be levied for noncompliance such as misrepresentation of the waste, missing inspection reports, manifesting errors, or any other violations of the applicable requirements.

Section 3 – Standards:

Standard	Title
29 CFR 1910.120(p)	Hazardous Waste Operations
<i>Note Requirements for the storage facility.</i>	
49 CFR 171-178	General Information, Regulations, and Definitions; Hazardous Materials Table, Special Provisions, Hazardous Materials; ...etc.
<i>Note Establish standards for the packaging, labeling, marking, vehicle placarding, and shipping paper preparation necessary to ensure the safe transport of hazardous materials and wastes. Individual states and local governments may impose additional transportation requirements for transport of hazardous waste.</i>	
Andrews Air Force Base	Air Force Hazardous Waste Directives
<i>Note Applicable state and other regulations implementing RCRA.</i>	
DOE Headquarters Directive EM-30,	DOE Headquarters Directive EM-30,

2.1.3 Hazardous Waste

Latest Revision: 9/30/1996

Performance Objective for the
Certification of Nonradioactive
Hazardous Waste

Performance Objective for the Certification
of Nonradioactive Hazardous Waste

Note Requires that hazardous waste destined for off-site disposal at commercial facilities be certified as containing no "DOE-added radioactivity."

California Codes, Title 22, Division 4

Social Security/Environmental Health

Note Applicable state and other regulations implementing RCRA.

California Codes, Title 26

Toxics

Note Applicable state and other regulations implementing RCRA.

Nevada Administrative Code (NAC)
444.850 - 444.8746

Disposal of Hazardous Waste

Note Applicable state and other regulations implementing RCRA.

Nevada Revised Statutes (NRS)
459.400 - 459.600

Disposal of Hazardous Waste

Note Applicable state and other regulations implementing RCRA.

New Mexico Hazardous Waste Act,
Chapter 74, Article 4

Hazardous Waste Management

Note Applicable state and other regulations implementing RCRA.

Section 4 - Measurement Parameters:

The performance could be measured by the level of customer satisfaction, the number of Findings of Alleged Violation issued, and the dollar amount of any fines levied.

A measure of "quantity received over time" or "inventory stored" can be used to assess waste minimization and adequacy of storage facility.

Cost per unit volume.

Section 5 - Implementation Considerations:

No waste with "DOE-added radioactivity" will be accepted for transport to, or for storage at any RCRA regulated treatment, storage or disposal facility. The waste must be certified free of DOE-added radioactive contamination (both surface and volume) prior to transport from the SAA to any RCRA regulated treatment storage or disposal facility, making the radiation hazard associated with this operation very low.

Waste generators and subcontractors, i.e., TSDF personnel, transporters, etc., will be

2.1.3 Hazardous Waste

Latest Revision: 9/30/1996

required to adhere to the standards set forth in this document. This will be verified by qualified personnel who are responsible for ensuring that the waste being stored at the storage facility and destined for off-site shipment meets all applicable requirements.

Section 6 - Work Environment:

Waste handling activities take place in many different settings, outdoors and office locations being the most common.

Section 7 - Uncertainties or Issues:

The need for current information is critical to the success of a program which uses the law to define boundaries. Personnel involved in hazardous waste management must be kept abreast of new developments, technologies, regulations, etc.

Section 8 - Training:

Training will be conducted according to the standards listed.

Section 9 - Vulnerabilities:

DOE/NV retains liability for subcontracted treatment, storage or disposal of hazardous waste. This vulnerability is mitigated by periodic assessments of disposal subcontractors and by requiring certificates of destruction or disposal from the disposal sites.

2.1.4 Solid Waste

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Solid waste can be either a solid, liquid or gas which has been disposed of, abandoned or recycled. There are a few wastes which are exempt from solid waste regulations which are normally regulated under other environmental laws. Solid waste may be further broken down into a category called "hazardous waste" which will not be discussed in this document. (See WBS Element 2.1.3).

Solid waste generators vary from office personnel to construction site personnel. The types of waste vary from office paper, to cafeteria waste, to construction debris.

Work activities include:

- Transporting solid waste to the disposal site - See WBS 3.6 Transportation.
- Verification that waste being disposed is adequately characterized.
- Disposal of the solid waste. This entails operating heavy equipment in accordance with established procedures or techniques common to industrial operations. This includes moving waste in the disposal site and properly covering it.
- Prepare solid waste generator reports for submission to the state of Nevada.
- Closure and postclosure activities. This activity will not be defined until a final plan has been prepared and approved by the Department of Energy and the state of Nevada.
- Generally, operations will entail the movement and compaction of soil to form a final cover over the site.

For work activities conducted at off-site locations in Las Vegas, California, Washington, D.C., and New Mexico operations are conducted in government owned or leased facilities or at Air Force bases. Solid waste management is the responsibility of the local municipalities or the Air Force and is provided to the DOE operations as a service.

Section 2 - Hazards and Management Issues:

The hazards associated from activities at the disposal site include:

- Safety hazards in the operation of heavy equipment for the movement of the solid waste and cover material,

2.1.4 Solid Waste

Latest Revision: 9/30/1996

- Fire hazards from equipment and combustible waste,
- Potential environmental hazards due to leaching of materials into the groundwater or dispersion into the atmosphere.
- Health hazards from regulated waste disposal (e.g., asbestos) and disease vectors (i.e., rodents, dead animal carcasses).
- Assuring that the waste disposed of is properly characterized.

Section 3 – Standards:

The following standards are considered necessary and sufficient for the solid waste management program:

Standard	Title
29 CFR 1910.1001	Asbestos
<i>Note Requirements for asbestos hazard abatement.</i>	
Nevada Administrative Code (NAC) 444.570 - 444.7499	Solid Waste Management
<i>Note These regulations establish the criteria for permitting, operating, and closing disposal sites. They also define illegal solid waste disposal activities.</i>	
Nevada Revised Statutes (NRS) 444.440 - 444.465	Collection and Disposal of Solid Waste
<i>Note</i>	

Section 4 - Measurement Parameters:

The following parameters are indicators of an effective solid waste management program:

OPERATIONS

- Decreased volume of waste entering the disposal site due to waste minimization (reduction, reuse, recycling). Although, this action does not directly impact this work activity, it represents a useful company wide performance measure.
- Decreased disposal cost per ton of solid waste.

COMPLIANCE

- No reports by disposal site personnel of generators improperly disposing of solid waste
-

2.1.4 Solid Waste

Latest Revision: 9/30/1996

not meeting the disposal site's waste acceptance criteria.

- Submittal of state of Nevada mandated waste generator reports and other documents in a timely manner.

Section 5 - Implementation Considerations:

Implementation of this program is necessary to meet state of Nevada regulations. The regulations outlined and the items considered above meet the minimal acceptable criteria for an effective solid waste management program. As long as these minimal requirements are met, the health and safety of the employees and the public will be maintained and the environment will be protected. These requirements are specified in detail in the permit application for each disposal site.

Because the heavy equipment operation is not covered by specific standards, a job-safety analysis should be performed to identify the specific hazards and then promulgate and implement the standards necessary to abate the hazards to an acceptable level.

The NTS landfill has been in operation for many years and pre-dates some of the regulations. Backfitting of design and operations features requires cost-benefit assessment and negotiation of requirements in the applicable permits.

Section 6 - Work Environment:

Work activities take place in the outdoor environment

Section 7 - Uncertainties or Issues:

Although state of Nevada regulations defined minimal standards, closure and postclosure costs have not been adequately defined for each disposal site. This activity may not have to be addressed until the site is prepared for closure.

Section 8 - Training:

Regulatory driven training is not applicable. Site personnel receive On-the-Job Training (OJT) to recognize job hazards and identify proper waste characteristics.

Section 9 - Vulnerabilities:

Generators must dispose of solid waste which meets the criteria for the disposal site. It is possible that Nevada Test Site personnel may dispose of unacceptable materials, and state of Nevada inspectors will discover this material. This action could lead to a state of Nevada issued Finding of Alleged Violation resulting in a fine, possible litigation and loss

2.1.4 Solid Waste

Latest Revision: 9/30/1996

of credibility for the Department of Energy and its contractors. Generator education, random inspections and review of submitted documentation ensure that all waste meets the acceptance criteria.

2.1.7 Radioactive Waste

Latest Revision: 9/19/2002

Section 1 - Work Activity:

This work activity includes generation, acceptance, and management of Radioactive Waste (RW) including low-level, mixed low-level, transuranic, and mixed transuranic waste.

A. Waste Types:

1. Low-Level Waste (LLW) is radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, byproduct material (as defined in the Atomic Energy Act (AEA) of 1954, as amended), or naturally occurring radioactive material. Small quantities of 11e.(2) (AEA) byproduct may be managed as LLW.
2. Transuranic Waste (TRU) is radioactive waste containing more than 100 nanocuries/gram of alpha-emitting transuranic isotopes with an atomic number greater than 92 and a half-life greater than 20 years.
3. Mixed Waste (MW) contains both radioactive waste (LLW or TRU) and a Resource Conservation and Recovery Act (RCRA) or state-of-generation hazardous component.

B. Work Activities:

LLW work activities consist of the management of LLW originating from onsite or offsite locations. LLW is typically disposed in shallow-land burial cells, although some waste has been placed in deeper Greater Confinement Disposal (GCD) boreholes.

TRU waste work activities consist of waste that is generated, treated, or stored at the Nevada Test Site (NTS), shipped offsite for treatment and/or disposal. This also includes activities associated with TRU waste buried in Area 5 GCD boreholes or shallow-land burial cells.

MW work activities consist of the management of waste originating from onsite or offsite locations. MW is typically disposed in shallow-land burial cells, consistent with RCRA requirements.

Five primary work activities are involved in managing RW: generation; treatment; storage; disposal; and transportation. Typical processes used in the primary work activities may include:

- Development of Execution Plans and implementation documents

2.1.7 *Radioactive Waste*

Latest Revision: 9/19/2002

- Life Cycle Planning & Management
- Facility Design & Site Evaluation
- Waste Characterization & Waste Stream Identification
- Identification of Disposal Alternatives
- Waste Accumulation
- Waste Certification
- Facility and/or Waste Inspection/Monitoring
- Packaging
- Performance Assessment (PA)
- Composite Analysis (CA)
- Waste Acceptance
- Facility Closure
- Environmental Monitoring

Not all processes are applicable to each individual facility, operation, or activity. The governing documents will identify, control, and implement the specific process(es) that are applicable. In addition to the standards listed in Section 3, the following Work Smart Standards (WSS) contain specific elements that are applicable to the Radioactive Waste work activities: WSS 1.1.5, "Training;" WSS 2.1.2, "PCB;" WSS 2.1.4, "Solid Waste;" WSS 2.5, "Drilling;" WSS 2.7.1, "Engineering Design;" WSS 2.8, "Construction;" WSS 2.10, "Occurrence Reporting;" WSS 2.12, "Hazard Assessment;" WSS 2.X, "Hazard Category 2 & 3 Non-Reactor Nuclear Facilities;" WSS 3.4, "Facility Maintenance;" WSS 3.6, "Transportation;" WSS 3.7, "Industrial Security;" WSS 4.2.1, "Occupational Safety & Health Program;" WSS 4.2.2, "Industrial Hygiene;" WSS 4.4, "Radiation Protection;" WSS 4.5, "Environmental Protection Program;" WSS 4.8, "Emergency Management Program and System;" and WSS 4.9, "Environmental Monitoring Program." In addition WSS 1.8 "Administrative Systems and Controls" applies to facilities that generate, treat, store, or dispose of RW.

1. Generation: Generation is an activity or process that produces RW. RW generated at NTS or under the purview of DOE/NV consists mostly of investigation-derived and remediation waste from environmental restoration activities and wastes produced from research and development activities. All generators of waste destined for the NTS must meet the NTS waste acceptance criteria.

2. Treatment: Treatment is any method, technique, or process that changes the physical or chemical characteristic of waste to render it less hazardous; safer to transport, store, or dispose; or reduce its volume. Treatment activities could include, but are not limited to, repackaging, stabilization, and volume reduction.

2.1.7 Radioactive Waste

Latest Revision: 9/19/2002

3. Storage: Storage is the holding of radioactive waste until the waste is treated and/or disposed. Storage could occur at point-of-generation or other designated locations.
4. Disposal: Disposal is the emplacement of waste at designated locations at the NTS in a manner that ensures protection of the public, workers, and the environment with no intent of retrieval and that requires deliberate action to regain access to the waste. Disposal activities occur in the Area 3 and 5 Radioactive Waste Management Sites.
5. Transportation: Transportation is any transfer of RW between generation, treatment, storage, and disposal locations.

Section 2 - Hazards and Management Issues:

Environment, Safety, and Health hazards associated with generation, storage, treatment, and disposal activities include: 1) nuclear/radiological (e.g., human exposure, environmental releases); 2) chemical (e.g., human exposure, environmental releases); 3) standard industrial safety (e.g., slip, trip, fall, snake bites); 4) environmental impact (e.g., degradation of existing habitat); and 5) standard transportation concerns (e.g., motor vehicle accident).

Management issues include: a) future decisions regarding the final disposition of previously disposed waste in GCD boreholes; b) waste with no path to disposal; c) multi-agency regulatory authority of certain waste types; d) data management (i.e. record keeping and traceability); e) non-compliance or violations; f) facility hazard classification; g) defensibility of the waste certification process; and h) public perception. Generation of RW without considering proper management and disposition may impact budgets and result in non-compliance or violations. These decisions may impact stakeholders' perception of DOE/NV's credibility.

Section 3 – Standards:

The following standards are used to mitigate the hazards associated with RW management. Most of these standards reference WBS elements incorporated into the contract between DOE/NV and BN. Each WBS element contains more detailed information regarding the standard(s) that should be followed to mitigate the hazards associated with a particular work activity.

Work Smart Standards identified in other WSS WBS elements apply to the Radioactive Waste work activities when such other work activities conducted are associated with the

2.1.7 **Radioactive Waste**

Latest Revision: 9/19/2002

facility, operation, or activity to be governed by the standards defined in this WBS. For example, training, construction, facility maintenance, occurrence reporting, Occupational Safety and Health Program, Environmental Protection Program, etc., contain specific elements that are applicable to the Radioactive Waste work activities as described in Section 1.

Standard	Title
10 CFR 830.120	Quality Assurance Requirements for Nuclear Facilities
<i>Note Addresses Management Issues d, e, and g.</i>	
10 CFR 835	Radiation Protection for Occupational Workers
<i>Note Addresses radiation exposure protection. ES&H hazards 1 and 3; Management Issue d.</i>	
40 CFR 191	Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level, and Transuranic Radioactive Waste
<i>Note Applies to TRU waste only. ES&H hazards 1 and 4; Management Issue h.</i>	
DOE M 5632.1C-1	Protection and Control of Safeguards and Security Interests
<i>Note Chapter IX and Chapter III, Paragraphs 1, 2, 4-9 are canceled and do not apply. Chapter IX is canceled by DOE O 470.1. ES&H hazards 1 and 2; Management Issue h.</i>	
DOE O 474.1 CRD	Control and Accountability of Nuclear Materials
<i>Note Addresses nuclear material management. ES&H hazard 1 and Management Issue h.</i>	
DOE/NV Agreement In Principle Appendix X	
<i>Note Addresses multi-agency authority through the Joint Oversight Agreement with the state of Nevada for LLW. Management Issues c, e, and h.</i>	
DOE/NV-325	NTS Waste Acceptance Criteria
<i>Note Addresses qualifications, record keeping, traceability, waste certification for RW destined for disposal at the NTS. ES&H hazards 1, 2, 3, 4, and 5; Management Issues d, e, g, and h.</i>	

2.1.7 Radioactive Waste

Latest Revision: 9/19/2002

DOE-EM-STD-5502-94

Hazard Baseline Documentation

Note Addresses the development of the authorization basis documentation for radiological facilities (i.e. less than a category 3 nuclear facility). ES&H hazards 1, 2, 3, and 5; Management Issues d, f, and h.

Mutual Consent Agreement for the
Storage of Low-Level Mixed Waste

Mutual Consent Agreement for the Storage
of Low-Level Mixed Waste

(June 1995 and modified November 1998)

Note Applies to MW not identified in the NTS Site Treatment Plan. ES&H hazards 1, 2, and 4; Management Issues b, d, and e.

NV M 435.1-1 CRD

Radioactive Waste Management

Note Revised by BCR 2002-006. Addresses life-cycle planning for the generation, storage, treatment, and disposal of Radioactive Waste. Management Issues b, and d. DOE O 435.1, Radioactive Waste Management is implemented through the NNSA/NV 435.1-1, Radioactive Waste Management Manual. Contractors and NTS users meet the requirements of DOE O 435.1 through conformance with NV M 435.1-1.

Federal Facilities Agreement and
Consent Order (FFACO) of 1996

Federal Facilities Agreement and Consent
Order (FFACO) of 1996

Note Applies to environmental restoration activities in the state of Nevada. ES&H hazards 1, 2, and 4; and Management Issues a, b, c, d, e and h.

Federal Facilities Compliance Act
Consent Order (May 1995)

Federal Facilities Compliance Act Consent
Order (May 1995)

Note Applies to MW identified in the NTS Site Treatment Plan. ES&H hazards 1, 2, and 4; Management Issues b, d, and e.

SARA Title III

The Emergency Planning and Community
Right-to-Know Act of 1986 (also known as
SARA Title III or EPCRA)

Note Provides an infrastructure at the state and local levels to plan for and report chemical emergencies. ES&H hazard 2, Management Issues d, e and h.

Settlement Agreement for Transuranic
(TRU) Mixed Waste Storage Issues at the
Nevada Test Site (June, 1992)

Settlement Agreement for Transuranic
(TRU) Mixed Waste Storage Issues at the
Nevada Test Site (June, 1992)

Note Applies to mixed TRU waste in storage. ES&H hazards 1, 2, and 4; Management Issues b, d, and e.

Nevada Administrative Code 444.842-

Facilities for the Management of

2.1.7 **Radioactive Waste**

Latest Revision: 9/19/2002

444.976	Hazardous Waste
<i>Note As applicable to Mixed Waste generation, treatment, storage, transportation, and disposal. ES&H hazards 2, 3 and 4; Management Issues c, d, e, and g.</i>	
42 USC 2011 et seq.	Atomic Energy Act, as amended
<i>Note Ensures proper management, production, possession, and use of radioactive materials. Provides DOE with authority for developing generally applicable standards for protecting the environment from radioactive materials as identified as ES&H hazard 1 and 4. Management issues a and h</i>	
42 USC 20216	Low-Level Waste Policy Amendments Act
<i>Note Section 3(b)(1)(d) establishes an equivalency for greater-than-Class C generated waste. ES&H hazard 1 and Management Issues a and b.</i>	

Section 4 - Measurement Parameters:

Performance is measured by tracking and evaluating cost, schedule, and milestones through the Task Plan process and the Performance Evaluation Plan.

Section 5 - Implementation Considerations:

No significant changes are anticipated, although organizations may need to develop or revise and appropriately maintain operational and safety basis documentation to incorporate applicable requirements identified in DOE/NV M 435.1-1 CRD, "Radioactive Waste Management." Examples of operational and safety basis documentation include, but are not limited to, Execution Plans and NTS Waste Acceptance Criteria.

The requirements identified in DOE/NV M 435.1-1 CRD apply to subcontractors unless otherwise stated in contractual documents. No exemptions to the mandatory laws or regulations have been identified. No questionable implementation considerations have been identified concerning regulatory permits.

Section 6 - Work Environment:

RW management activities including generation, treatment, storage, disposal, and transportation are performed at locations such as designated offices, storage areas, and shallow-land burial cells (trenches and craters). Some activities require frequent travel to other work locations (i.e., another DOE facility).

Section 7 - Uncertainties or Issues:

Issuance of a RCRA Part B Permit for continued operation of the MW disposal unit is

2.1.7 *Radioactive Waste*

Latest Revision: 9/19/2002

pending and may impose new requirements.

DOE's policy on Classified Material Operations is currently being reviewed. Programmatic changes may impact identified standards.

Section 8 - Training:

There are no known unique or special indoctrination, training, and/or certification requirements beyond those identified in the standards for this WBS. The WSS identified provide for a rigorous task analysis process to develop training programs commensurate with the hazards and risks associated with this Format 1.

Section 9 - Vulnerabilities:

No standard has been identified that can fully mitigate management risks associated with public perception. Public perception regarding RW activities may negatively impact performance of operations and missions at the NTS as well as the DOE Complex.

No standard has been identified that can fully integrate management and ES&H risks associated with the uncertainty of the volume of waste, schedule for generation, shipment and receipt of waste, and management of waste with no identified path forward. These risks may adversely impact resource and life-cycle planning.

2.1.8 Waste Explosives Disposal

Latest Revision: 8/22/2002

Section 1 - Work Activity:

This work activity involves the treatment of waste explosives at the Nevada Test Site. Energetic materials disposal can be divided into three activities: inspection, storage, and disposal. When disposing waste DoD ordnance, the proper DoD directives are employed.

Inspection:

- Weekly inspection of waste disposal site(s)
- Quarterly inspection(s) of explosive/ordnance magazine(s) materials to be destroyed

Storage of waste explosives/ordnance in approved magazines

Disposal:

- Placing and setting charges for explosives destruction
- Shotfiring

Post shot activities:

- Confirmation of destruction
- Shrapnel pickup
- Record keeping

(WBS 3.12, "Explosives Storage," is a related work activity.)

Section 2 - Hazards and Management Issues:

Specific hazards associated with explosive ordnance disposal include: the handling and use of high explosives, including the explosives used for the destructive blast as well as the explosives being destroyed.

The general hazards of the disposal operation are not unique. The explosive hazards are equivalent to those routinely faced by mining, construction, or explosives manufacturing personnel in industry.

Environmental degradation as a result of the treatment of hazardous wastes in the disposal operation is also a management issue.

Section 3 – Standards:

Standard	Title
29 CFR 1910.120(p)	Hazardous Waste Operations

2.1.8 Waste Explosives Disposal

Latest Revision: 8/22/2002

Note Note revised by BCR 2002-022.

This work activity is performed at a permitted facility. The cited standard is specific to disposal activities and requires a site-specific safety program be developed that utilizes applicable parts of both 29 CFR 1910 and 29 CFR 1926. The resulting safety program should incorporate manufacturers' recommendations for disposal of waste explosives. The site-specific safety program, when developed and properly implemented, will adequately protect the individuals disposing of conventional explosives.

The mitigation of risks associated with the disposal of ordinance requires the use of trained personnel and specific disposal criteria for each type of ordinance.

40 CFR 260 Through 270

Federal Hazardous Waste Management Program

Note Added by BCR 97-002, 10/15/98.

Military Munitions Rule: Hazardous Waste Identification and Management, Explosive Emergencies, Manifest Exemptions for Transportation of Hazardous Waste on Right of Ways on Contiguous Properties; Final Rule.

Department of Defense (DoD) Ordinance Disposal Criteria

Department of Defense (DoD) Ordinance Disposal Criteria

Note Requirements for disposal of DoD wastes only.

Nevada Administrative Code (NAC)
444.850 - 444.8746

Disposal of Hazardous Waste

Note Note revised by BCR 2002-022.

The designated facility for disposal of waste explosives and munitions is a Permitted Hazardous Waste Treatment Unit.

Nevada Revised Statutes (NRS)
459.400 - 459.600

Disposal of Hazardous Waste

Note Note revised by BCR 2002-022.

The designated facility for disposal of waste explosives and munitions is a Permitted Hazardous Waste Treatment Unit.

Section 4 - Measurement Parameters:

2.1.8 Waste Explosives Disposal

Latest Revision: 8/22/2002

Net Explosive Weight (NEW) detonated annually.

Documentation of no violations of standards annually.

Completion of required inspections in a timely manner.

Section 5 - Implementation Considerations:

Implementation may involve preparation of a unique safety and health plan (or section of plan) to address non-industrial or military ordnance.

Adopting the proposed standard would not affect operations.

This operation is also governed by the State of Nevada, Division of Environmental Protection, RCRA Part B Permit, NEV HW009, as a Hazardous Waste Treatment Facility. Operations must follow the Part B Permit requirements. Fines and loss of the Part B Permit are possible for findings of violation of the permit conditions.

Section 6 - Work Environment:

The energetic materials disposal work is an outdoor operation essentially no different from any other outside construction activity conducted by DOE/NV. Conditions are not considered extraordinary, but with respect to handling and storing explosives, one has to keep in mind the accepted operating temperature ranges of the substances in use, as well as lightning activity within a 5 mile radius and dust storms during low humidity conditions.

Section 7 - Uncertainties or Issues:

Any uncertainties in disposal operations are eliminated by following the manufacturers recommendations for the substance being destroyed.

Section 8 - Training:

There is required training detailed in the RCRA Part B Permit.
Additional training may be required for the disposal of non-industrial or military ordnance.

Section 9 - Vulnerabilities:

N/A

2.2 *Environmental Restoration*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This activity describes the comprehensive environmental restoration program for DOE Nevada. Major elements include:

- Assessing and remediating sites containing Resource Conservation and Recovery Act (RCRA) regulated materials, hydrocarbon contaminated soils, abandoned septic tanks, contaminated mud pits, radioactively contaminated soils, and removing or upgrading underground storage tanks;
- Collecting waste, soil, and water samples and performing geophysical surveys to determine below ground characteristics;
- Coordinating health physics, construction, and waste handling support and supervising and documenting field activities;
- Preparing closure plans, health and safety plans, work plans, radiation control permits, and the final closure reports;
- Maintaining extensive project files on completed projects to date and the available information of future projects. Records management activities are described in WBS element 1.5;
- Designing and implementing a groundwater characterization program leading to the development of a hydrologic model for the NTS;
- Maintaining and developing computer data bases in support of compliance activities for the Federal Facility Agreement and Consent Order (FFACO);
- Locating and describing all known NTS sites requiring assessment or remediation.

Non-NTS Nevada locations include the Tonopah Test Range, the Project Shoal site, the Central Nevada Test Area and portions of the Nellis Air Force Range including the Double Tracks and Clean Slates I, II, and III safety shot sites. Remediation sites are also located in Alaska, Colorado, New Mexico, and Mississippi where subsurface nuclear tests were conducted.

It is possible to encounter TSCA wastes (PCBs) during environmental restoration work. The waste would be managed and disposed of in accordance with WBS 2.1.2. CERCLA

2.2 ***Environmental Restoration***

Latest Revision: 9/30/1996

would only come into play if the DOE experiences a release that must be reported to the National Response Center, or if DOE sites are placed on the National Priorities List. At this time, DOE/NV is managing wastes, including historic releases, under RCRA (40 CFR 264 Subpart F which introduces the concept of Solid Waste Management Units, and 40 CFR 264 Subpart S, Corrective Action for Solid Waste Management Units).

The environmental restoration work activity does not include the actual management and disposal of the waste that is generated during remediation work. Refer to WBS 2.1.2 (PCBs), WBS 2.1.3 (Solid Waste), WBS 2.1.4 (Hazardous Waste), WBS 2.1.5 (TRU Waste), WBS 2.1.6 (Mixed Waste), WBS 2.1.7 (Low Level Waste), and/or WBS 2.1.8 (EOD) for this information. The construction activities are covered under the WBS 2.8, Construction, and the transportation activities are described in the WBS 3.6, Transportation.

Section 2 - Hazards and Management Issues:

The hazards associated with performance of the work include those that normally exist in industrial and construction environments. Those hazards specifically associated with this work activity include:

Heat exhaustion/stroke resulting from wearing level A, B, C personnel protection equipment (PPE) in high temperatures.

Acute and chronic personnel hazards associated with the materials being remediated including exposure to biological hazards, hazardous chemicals, and radionuclides.

Contamination of the environment from releases of contaminated materials and waste.

Section 3 – Standards:

The following are the necessary and sufficient standards:

Standard	Title
29 CFR 1910.109	Explosives And Blasting Agents For General Work
<i>Note Requirements for handling and use of explosives, except for 1910.109(d)(1)(iv), Transportation of explosives which is covered by IME Standard 22.</i>	
29 CFR 1910.120	Hazardous Waste Operations and

2.2 Environmental Restoration

Latest Revision: 9/30/1996

Emergency Response

Note Addresses hazardous waste site activities such as: organizational structure, work plan, site-specific safety and health plan, safety and health training, medical surveillance, procedures, and interfaces between general and specific work activities.

American National Standards Institute
(ANSI)

Applicable Standards

Note Applicable standards for characterization activities like soil sampling and geophysical surveys. Specific standards used are determined on a case-by-case basis depending upon the type of activity, selected equipment, and the physical environment, e.g., soils conditions, moisture, rock type.

American Society for Testing and
Materials (ASTM)

Applicable Standards

Note Applicable standards for characterization activities like soil sampling and geophysical surveys. Specific standards used are determined on a case-by-case basis depending upon the type of activity, selected equipment, and the physical environment, e.g., soils conditions, moisture, rock type.

Federal Facility Agreement and Consent
Order (FFACO)

Federal Facility Agreement and Consent Order (FFACO)

Note The FFACO between DOE/NV and the State of Nevada wherein DOE/NV agrees as a matter of comity to enforceable cleanup milestones for Corrective Action Units (CAUs) which were previously DOE self-regulated under the Atomic Energy Act.

Nevada Administrative Code (NAC)
444.850 - 444.8746

Disposal of Hazardous Waste

Note RCRA is the regulatory driver for remediation projects involving RCRA regulated materials and wastes and contains significant civil and criminal fines and penalties.

Nevada Administrative Code (NAC)
459.9921 - 459.999

Storage Tanks

Note These regulations define reportable releases in terms of volume and concentration, define the minimum standards for construction, operation and monitoring of USTs, and set time limits for upgrading and closing USTs.

Section 4 - Measurement Parameters:

2.2 *Environmental Restoration*

Latest Revision: 9/30/1996

An important objective of environmental restoration is to mitigate releases from sites or facilities that have harmed or have the potential to harm the environment or human health. Some measures of the restoration effort are:

- Reducing the levels of contaminants in the environment to acceptable, pre-determined levels
- Number of unplanned environmental releases during the remedial effort
- Acceptance of closure documentation/site closure by NDEP
- Post-closure monitoring data meets defined criteria
- Cost and schedule performance
- Customer satisfaction

Section 5 - Implementation Considerations:

Implementation of the Federal Facility Agreement Consent Order (FFACO) will prioritize what environmental restoration projects are to be performed. DOE/NV has responsibility for approximately 2500 CAS locations which require some sort of corrective action. Those sites range from small areas where trash has been dumped to areas where hazardous chemicals and/or radionuclides have contaminated the local environment. Each site is referred to as a Corrective Action Site (CAS). CASs that are similar in the nature of the contamination or are geographically close have been grouped into Corrective Action Units (CAUs). The FFACO stipulates penalties for not remediating CASs on the agreed to schedule. Final closure is reached when all CASs within a CAU are remediated.

The standards presented in section 3 have been implemented. Cost savings could result from:

- Eliminating the requirement to prepare an Occurrence Report every time a release is discovered beneath an underground storage tank that is being removed (the release occurred years previously). Preparing an occurrence report for an old environmental release does not provide benefit and requires many hours effort to produce and track. Releases are already reported to the state regulator through another process.
- Eliminating the need for stand-alone pre-task hazard review, job safety analysis, hazard assessment, safety analysis, and Health and Safety Plan for each remediation site. The

2.2 *Environmental Restoration*

Latest Revision: 9/30/1996

project/site specific hazard assessment and the project site-specific Health and Safety Plan are more than adequate to cover the work activities. For more information on these work activities, see WBS 2.12 Hazard Assessment.

· Revising the waste acceptance process required to dispose radioactive waste at the NTS. That process requires excess sampling and analysis and a lengthy audit and approval process and is more restrictive and costly than the acceptance process required to dispose radioactive waste at commercial disposal facilities. For more information on these work activities, see WBS 2.11 Radioactive Waste Acceptance Program.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Any incident resulting in an exposure to a worker or a release to the environment would be damaging to perception of remedial operations. Post-closure monitoring results above approved action levels would require further corrective actions.

2.3 *Surface Mining*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The work activity involved with surface mining is to supply aggregate varying in size from large rock and rip-rap used as building stone, to finely screened sand and gravel used in concrete, road surfacing, and other construction applications.

Surface mining can be divided into the following activities:

Stripping

- Removal of the unusable material over the deposit by blasting or ripping the material.
- Transporting unusable material to a dump area within the mining complex, but away from the area to be mined.

This stripping is exclusive to mining and does not apply to ground-clearing operations for construction, environmental restoration or other activities.

Mining

- Blasting or ripping the material to be mined to loosen it so it can be loaded.
- Loading and transporting the material to the crushing and screening, treatment plant, or loading point (if quarried stone).

Treatment

- Crushing (or sizing) material.
- Washing or screening of the crushed material to produce a final product.
- Waste water is collected in a series of ponds and reused.

Handling of the final products

- Stockpiling or containerizing the usable product for shipment to customer.
- Stockpiling or disposing of unusable material from the treatment plan.

Necessary and sufficient aspects of transportation will be discussed under WBS 3.6, Transportation.

Section 2 - Hazards and Management Issues:

2.3 Surface Mining

Latest Revision: 9/30/1996

Hazards specific to surface mining include:

- Injury or illness associated with heavy construction equipment, drilling (during blasting operations) conveyors, screens, and other processing equipment,
- Injury due to working at heights,
- Injury due to failure of the walls of the pit,
- Injury or illness from inhaling dust from mining operations,
- Deterioration of air quality due to dust caused by drilling, blasting, transporting or crushing materials, and
- Water pollution from the discharge of waste water to the ground surface.

Section 3 – Standards:

Standard	Title
30 CFR 56	Mineral Resources – Safety and Health Standards Surface Metal and Non-metal Mines
<i>Note Requirements for worker protection from all hazards cited in the WBS including the actual blasting operation itself (however, 30 CFR Part 56.5005(b), respirators, is not included because respirators are covered by 29 CFR 1910.134 or 1926.103 from WBS 4.2.2). Surface Metal and Non-metal Mines are the most applicable standards for meeting the Necessary and Sufficient requirements for surface mining. MSHA and OSHA have reached an agreement in the state of Nevada that MSHA regulates surface mining operations.</i>	
Nevada Administrative Code (NAC) 445.070 - 445.241	Water Pollution
<i>Note Governs water discharges to waters of the state, and implement the Clean Water Act. No permits are currently necessary for water discharges from surface mining at the NTS.</i>	
Nevada Administrative Code (NAC) 445B.001 - 445B.395	Air Pollution
<i>Note Governs air quality in the state of Nevada, and implement the Clean Air Act through a system of permits.</i>	

Section 4 - Measurement Parameters:

2.3 *Surface Mining*

Latest Revision: 9/30/1996

Cost per unit weight of mined material

Quantity mined per unit time

Section 5 - Implementation Considerations:

Adopting the proposed standards would have no adverse effect. Since MSHA does not have jurisdiction at the NTS, DOE/NV and its contractors would have to decide how to handle the notifications required by the MSHA standard.

Section 6 - Work Environment:

The work environment for surface mining personnel at the NTS mimics that of any surface mining operation in this part of the country.

Section 7 - Uncertainties or Issues:

While reclamation is not required by federal or state law (sand and gravel operations are specifically exempt from state mining laws), DOE/NV may elect to perform reclamation after the completion of mining. Reclamation could take the form of grading, correction of drainage patterns, or revegetation.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

None

2. 4 *Underground Operations*

Latest Revision: 9/20/2002

Section 1 - Work Activity:

The major activities associated with underground operations at the NTS include:

Excavation - Excavation of drifts and other underground openings (alcoves, stations, keyways, etc.). Methods employed may include conventional (drill, blasts, muck) or utilizing mechanical excavation.

Ground Support - Process of preventing fall or collapse of ground in excavated openings. Methods may include a variety of rock bolt types, typically with wire mesh. Support systems may also include other elements, such as shotcrete, mats, stulls, sets, etc).

Underground Transportation - Transport of muck, personnel, equipment and supplies from surface support areas to underground locations. Systems may include rail systems, trackless equipment and handcarts.

Utility Systems Operations - Installation and operation of various utility systems. These might include compressed air, non-potable water, high and low voltage power systems, instrument power, lighting, communication and signal wires, drainage (pump) lines, etc.

Construction - Installation of general construction elements, e.g., concrete slabs, alcoves, doors, containment plugs and structures, power circuits, experimenter data collection systems, HVAC, etc.

Shaft Operations - Maintaining shafts for the purpose of access to underground facilities for personnel, materials and utility system routing. Activities also include shaft maintenance..

Surface Operations - Use of surface facilities and storage areas are necessary to operate the underground facility. These facilities may include; hoist house, headframe, muck dump, muck pile, change house, compressors, and shops.

Section 2 - Hazards and Management Issues:

General Hazards associated with Underground Operations include:

- Those related to use of mechanical excavation and material handling equipment.
- Use of explosives.
- Potential fall of ground prior to and/or during installation of initial ground support.
- Those related to transportation such as train derailment, crushing or struck-by haulage

2. 4 *Underground Operations*

Latest Revision: 9/20/2002

equipment, and movement of explosives.

- Insufficient ventilation for maintenance of air quality.
- Electrocution or shock hazards.
- Fall, dropped-on, or caught-in hazards associated with shaft and hoist operations.
- Contact with high energy systems such as compressed air.
- Explosion hazards due to drilling or mining into expended test cavities.
- Exposure to radiation, both ionizing and non-ionizing.
- Slump of muck piles (primarily at surface).
- Entrapment due to fire or ground collapse.
- Escape to the surface and protection of personnel underground in emergency situations is a paramount concern.
- Exposure to noise and dusts.
- Hazards unique to a given test/experiment and the related diagnostic techniques utilized.

Section 3 – Standards:

Standard	Title
NV O 440.X	Underground Operations Safety and Health Standards

Note Added by BCR 2002-025.

Section 4 - Measurement Parameters:

- Achievement of scientific and engineering objectives.
- Unplanned air quality excursions form acceptable values.
- Unplanned outages of utility systems.

Section 5 - Implementation Considerations:

As described in Section 1, “Activity”, above, this WBS encompasses the construction and operation of underground facilities in support of the conduct of tests and experiments. The hazards associated with each test or experimental activity will be identified and controlled through the work planning and authorization processes applicable to that project or program. This may include the identification of requirements unique to a test or experimental activity that are beyond the scope of this order.

Section 6 - Work Environment:

Remote locations ranging up to 45 miles from Mercury are common. Underground

2. 4 *Underground Operations*

Latest Revision: 9/20/2002

activities accessed by shafts, tunnels or adits in a variety of geologic settings.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2.5 Drilling

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity includes conventional activities associated with drilling and logging programs. Included in the work activity are all drilling and associated activities such as equipment rig-up and rig-down, drilling, completion, testing and geophysical logging. Site design and preparation are covered by WBS 2.7.1 "Engineering Design" and WBS 2.8 "Construction." All work activities beyond hole completion, except for geophysical logging, are covered by other WBS elements.

Examples of borehole types which may be drilled at DOE/NV include water production, monitoring, geotechnical, geophysical, emplacement and post-shot.

Section 2 - Hazards and Management Issues:

Activities described above are subject to general construction and operation of heavy equipment safety and health hazards. Geophysical logging operations may include the unique hazards common to radioactive source utilization.

Some drilling activities such as post-shot drilling and environmental monitoring, may expose personnel to radiological hazards. The mitigation of this hazard (job planning, dosimetry, training) are addressed in WBS 4.4, Radiological Protection.

The environmental hazard of greatest concern from drilling operations is the contamination of groundwater. State statutes and codes are designed to preserve and protect the waters of the state. This is stated explicitly in NRS 534.020:

- Underground waters belong to public and are subject to appropriation for beneficial use; declaration of legislative intent.
- All underground waters within the boundaries of the state belong to the public, and subject to all existing rights to the use thereof, are subject to appropriation for beneficial use only under the laws of this state relating to the appropriation and use of water and not otherwise.
- It is the intent of the legislature, by this chapter, to prevent the waste of underground waters and pollution and contamination thereof and provide for the administration of the provisions thereof by the state engineer, who is hereby empowered to make such rules and regulations within the terms of this chapter as may be necessary for the proper execution of the provisions of this chapter.

2.5 Drilling

Latest Revision: 9/30/1996

Wells drilled in the state of Nevada are governed by Nevada Administrative Codes (NAC) and Nevada Revised Statutes (NRS). Wells drilled by or for the DOE on the Nevada Test Site (NTS) are exempt from these requirements by virtue of NRS 534.00, which exempts federal reservations from these requirements. However, as a matter of comity it is recommended that these codes and statutes be complied with, unless compliance is deemed inappropriate.

Section 3 – Standards:

Standard	Title
10 CFR 39	Licenses and Radiation Safety Requirements for Well Logging
<i>Note Standards for geophysical logging which utilize a nuclear source, for both inside and outside NTS boundaries, are governed by 10 CFR Ch. I, Part 39. DOE personnel must ensure compliance with the following sections for nuclear logging performed by a sub-contractor: the contractor is required to be licensed in accordance with sections 39.11 and 39.13; operations may begin only after a written agreement has been signed designating lost source responsibilities as described in 39.15; the contractor is responsible for equipment safety precautions covered in 39.31, 39.33, 39.35, 39.37, 39.39, 39.41, and 39.43; wells without surface casing are regulated by section 39.51; the contractor is responsible for personnel safety requirements as defined by sections 39.61, 39.63, 39.65, 39.67, and 39.69; and the contractor is responsible for security and records defined in 39.71, 39.73, 39.75, and 39.77.</i>	
Department of Labor (DOL) Interpretation Letter, February 1982	Interpretation of 29 CFR 1910 for Drilling
<i>Note In February 1982, the USDOL, OSHA issued an interpretation letter regarding the standards that are applicable to drilling operations, i.e., water well, oil, and gas. The Agency respected the requests of the International Association of Drilling Contractors (IADC) by using the general industry standards, 29 CFR 1910, specific industry consensus standards. The interpretation letter is used as a basis for compliance officers to cite drilling contractors when they inspect.</i>	
Nevada Administrative Code (NAC) 534.280 - 534.298	License To Drill Wells
<i>Note Required for wells drilled by or for the DOE outside the NTS boundaries. These subsections describe the processes for qualification and certification of well drilling personnel. Other analogous state statutes will apply on a project-specific basis for drilling operations outside of the State of Nevada.</i>	

2.5 *Drilling*

Latest Revision: 9/30/1996

Nevada Administrative Code (NAC)
534.300 - 534.470

Drilling, Construction, and Plugging of
Wells – Miscellaneous Provisions

***Note** These subsections describe: 1) Administrative Requirements, 2) Drilling and Completion Documentation, 3) Materials and Processes Required to Protect State Waters, and 4) Preservation of State Waters. Other analogous state statutes will apply on a project-specific basis for drilling operations outside of the State of Nevada.*

Section 4 - Measurement Parameters:

Project cost and schedule.
Achievement of scientific and engineering objectives.
Protection of groundwater resources.

Section 5 - Implementation Considerations:

The Nevada groundwater protection codes identified in section 3.0 above are implemented by current standard operating guidelines.

Disclosure of project details to outside agencies is sometimes not possible due to the classified nature of some NTS operations.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2. 6.1 *Technical Software Development*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The work activity is the development of software to support instrumentation and R&D activities. This includes software to control and calibrate instrumentation systems, software to reduce and analyze the data from them and software to model them. The complexity of software written varies considerably. Projects which require critical software to be written or for which software is the major deliverable follow a general engineering process which consist of eliciting requirements from customers; designing a software system to meet the requirements; writing the software; testing the software; and producing the necessary documentation.

The requirements and specifications for the software to be produced are provided by the customer and are usually verbal and quite vague. Software may be, but is usually not, the primary product of the project that produces it. The software products are typically used by five people or less. Most software is only used internally and is not delivered to an external customer. The developer is generally the end user. Occasionally critical software is developed.

The design of a data acquisition system may include software which is used to control the system for proper timing, sequencing, and data acquisition. The software development portion generally represents a small part of the design and buildup. Software is also written for data analysis which may or may not be the final deliverable to a customer. Most analysis software is used internally and may evolve as new techniques are identified. Some software is written to model physical phenomena and the code may be the tangible deliverable to the customer. The most significant parts of modeling projects are developing and understanding the physics or science of the phenomena being modeled. The definition of critical is not driven by the type of software but its application and the potential of its failure to cause large financial loss, safety problems or loss/degradation of mission (IEEE Standard 610.12-1990).

Section 2 - Hazards and Management Issues:

The work activity of software development poses no hazards to the workers, the public, or the environment. Most software development takes place in an office environment with typical office hazards. Some work may occur in a laboratory or field environment with a potential to be around ionizing radiation, lasers, microwave, high voltage, and weather.

There are three predominant management issues relating to software development. The first is a failure of critical software which results in significant financial loss. This can be due to a defect in the original software, a defect which is introduced when the software is

2. 6.1 *Technical Software Development*

Latest Revision: 9/30/1996

modified, incomplete testing, incomplete reviews, or poor configuration management. The second is the potential for non-critical software to fail to perform as expected because of inadequate or inaccurate communication between the software developer(s) and the customer(s) or reasons cited above. The third is the software not being able to be enhanced, modified or effectively used in the future because of poor documentation during the development process.

Section 3 – Standards:

Standard	Title
Institute of Electrical and Electronic Engineers (IEEE) 730-1989	Standard for Software Quality Assurance Plans

Note Critical software should be identified and the means used to mitigate the risks should be documented, unless the customer specifies otherwise, in a software quality assurance plan which conforms to IEEE Standard 730-1989 Standard for Software Quality Assurance Plans. This standard provides the framework to mitigate the issues for critical software.

Section 4 - Measurement Parameters:

The measurement parameters for software development are (1) Did the delivered product meet all of its specifications?, (2) Was it delivered in accordance to the schedule?, and (3) Was it delivered within its budget?

Section 5 - Implementation Considerations:

IEEE Standard 730-1989 cited above references other IEEE Standards to help mitigate the issues listed in Section 2 for critical software. This Standard should be implemented by internal procedures that are driven by customer requirements and the complexity and criticality of the software. The second management issue (non-critical software failure) could be covered by an internal procedure for project planning with a small section devoted to problems peculiar to software. The third issue (lack of maintainability) should be addressed in two places. First, the project planning process should require addressing maintainability and documentation requirements in the early planning stages. Second there should be an internal procedure for documentation and coding.

There are existing standards that could be used as starting points for the last two management issues. IEEE Standard 830-1984, "Guide for Software Requirements Specifications," and IEEE Standard 1058.1-1987, "Standard for Software Project Management Plans," are suitable starting points for addressing failure of non-critical

2. 6.1 *Technical Software Development*

Latest Revision: 9/30/1996

software. IEEE Standard 1016-1987, "Recommended Practice for Software Design Descriptions," and IEEE Standard 1063-1987, "Standard for Software User Documentation," are suitable to address maintainability.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2.6.2 Assembly of Components and Systems

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The work activity involved with assembly of systems and components is the actual fabrication which could include manufacturing, welding, soldering, wiring, sheet-metal work, running conduit, and other work processes to produce an end product. The system/component could be a small module or a large complex instrument canister/rack used for nuclear testing. Some projects are proof of concept experiments which require no manufacturing or assembly standards and are conducted on a workbench in an R&D environment. Work may be conducted inside a large facility, a small laboratory, or could occur in a field environment. Start of the assembly process involves identification of resources, very specific planning with control points, and procurement of items. Engineering design, which covers the identification of assembly and manufacturing standards, is covered in WBS element 2.7.1. Drafting is covered in WBS elements 2.7.2. Writing of technical software is covered in WBS element 2.6.1, construction is covered under 2.8, and procurement in 1.3.2.

Assembly of components/systems can generally be divided into the following activities:

- Purchase or fabricate special components
- Assembly of qualified work team and planning the assembly process to develop milestones, cost controls, schedules, testing requirements, and safety considerations.
- Perform the assembly operations
 - * Perform actual work process.
 - * Inform customer of work status and any special hold points or problems.
- Monitor work activity for cost, time schedule, milestones, etc.
 - * Perform cost effectiveness evaluations
- Work inspection process
 - * Document product performance necessary to satisfy internal and external customer needs.
- Final testing and delivery

2. 6.2 *Assembly of Components and Systems*

Latest Revision: 9/30/1996

- * Conduct performance test and functional checks to verify system/component meets original criteria.
- * If tests are successful, deliver to customer.
- * Write final report to provide traceability and documentation.
- * Document lessons learned.

Section 2 - Hazards and Management Issues:

Specific hazards in assembly of components/system are:

- Facility/Site wide: Occupational such as lifting, cuts, falls, noise, minor chemical exposure, burns from soldering/welding, driving and possible electrical shock. Special operational hazards are analyzed each time. Assembly and testing phase may occur in the presence of high voltage, lasers, microwaves, and ionizing radiation.
- Environment: Primarily field, concerning spills of hazardous materials or chemicals.
- Management issues involved in assembly of components/systems are:
 - Reliability and Schedule: The purchase of low-bid items has resulted in unusable or unreliable components. The paperwork involved and length of time to complete a purchase and receive the items impact the whole work process.
 - Quality: Conformance to customer's requirements for product performance, schedule, and cost.

Section 3 – Standards:

Standard	Title
10 CFR 830	Quality Assurance Requirements for Nuclear Facilities

Note Applicable to activities at nuclear facilities only.

Section 4 - Measurement Parameters:

- Was the work activity completed on time?

2.6.2 Assembly of Components and Systems

Latest Revision: 9/30/1996

- Was the activity within budget?
- Did the product meet the customers performance requirements?

Section 5 - Implementation Considerations:

Prior to any assembly work, the customer's request is taken through an engineering design. The design identifies specific requirements such as software, hardware, specifications, tolerances, and standards. This information is incorporated into a project plan which includes budgets and defines deliverables. The Project Plan then calls for the appropriate standards based upon the criticality and complexity of the system.

Vendor/procurement issues may be dealt with in several ways. Three possibilities are discussed below.

Use only pre-qualified suppliers. Develop a list of technical and quality standards that all suppliers must meet. Use best/stringent industry standards. Evaluate and qualify all suppliers. Use periodic assessment to maintain an acceptable performance level.

Use a cost to qualification ratio that assures the best supplier rather than the cheapest. This requires a team to develop six (6) to ten (10) specific technical, quality, performance requirements for purchase. All suppliers are given this list of evaluators in order of priority. Total points are used to define the best supplier. These points are divided into the bid cost and the best (lowest) ratio is the successful supplier.

Use an accepted industry standard such as ISO 9000, 9001, 9002 to assure a measurable and meaningful level of quality. This standard is useful as a tool to evaluate potential suppliers. Full certification might not be required but documented self-assessment could be sufficient.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

2. 6.2 *Assembly of Components and Systems*

Latest Revision: 9/30/1996

Section 9 - Vulnerabilities:

A potential business line might be the short run production of specialty components. Certification as an ISO-9000 series supplier might enhance credibility of NTS as a manufacturer and/or may be required to qualify as a supplier. As a business decision, consideration should be given to the cost/benefit of ISO certification as an asset to the potential business line.

2. 6.3 *Data Collection and Analysis*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The work activity consists of the management of scientific data associated with the DOE Nevada contract. The work activities are: data acquisition (which can include the operation of the acquisition system); data analysis and reporting; and data storage (and associated retrieval processes). Each activity separately may constitute a complete project and produce a deliverable to the customer (data analysis for instance). Many different types of data are managed. These include (but are not limited to) handwritten documents such as journal entries and log sheets; hard-copy such as printouts and reports; film such as documentary photographs, weapons test oscilloscope traces, aerial photography; video tapes from presentations, documentary activities and scientific data acquisitions; and digital information stored on disks, tapes, magnetic cards.

The engineering design of the data acquisition system is covered under WBS element 2.7.1. Assembly and characterization of the acquisition system is covered under WBS element 2.6.2. The calibration process is covered under WBS element 3.10. The development of scientific software is covered under WBS element 2.6.1. Quality assurance issues are covered in WBS element 4.7. Retention of data, notes, drawings, etc. are covered under WBS element 1.5.1.

Section 2 - Hazards and Management Issues:

These work activities are conducted within a variety of environments and may include, office, laboratory, vehicle, aircraft, trailer, and field. The hazards may include, high voltage, microwave radiation, laser, ionizing radiation, and typical laboratory and office hazards.

Management issues are that data must be acquired, analyzed, and stored in a manner which satisfies customer requirements, complies with good business and scientific practice and protects the information from loss. Data must be complete enough to withstand scrutiny in possible litigation actions.

Section 3 – Standards:

Standard	Title
Customer Specified Requirements	Customer Specified Requirements
<i>Note This work activity is governed by other applicable program requirements developed through other WBS elements. The management issues are not mitigated by federal, state, local or industry orders or standards. The management issues are mitigated by implementing sound accepted</i>	

2. 6.3 *Data Collection and Analysis*

Latest Revision: 9/30/1996

business/scientific practices and adopting any customer specified requirements or standards in a project plan.

Section 4 - Measurement Parameters:

Data acquisition: customer requirements met, completeness of data set, cost, on time.

Data analysis: analysis meets customer requirements, turn around time, cost

Data storage/retrieval: success rate of data retrieval, percent of retrieved data still usable

Section 5 - Implementation Considerations:

Satisfaction of customer needs for all work activities is assured by documenting customer requirements, specifications, and records disposition in each project plan. The plan will contain the necessary detail to ensure that project scientists/engineers will be able to properly conduct data acquisition, analysis and reporting, and data archiving. Some implementation considerations for the three major work activities are discussed below. The project plan should address these as necessary.

DATA ACQUISITION All pertinent information describing the acquired data and the acquisition methodology will be recorded and complete enough that an individual, qualified in the particular discipline, can understand and properly analyze the data. In all routine data acquisition projects, an appropriate prompting method (checklist, pre-printed log sheet, digital menu, etc.), will be utilized to guarantee that appropriate requirements have been considered. Any equipment whose calibration can affect final analysis results must be calibrated/characterized and operated according to the supplier's documentation or special application requirements. The project plan will contain the necessary information to perform an experiment or project that calls for non-routine acquisition methods.

DATA ANALYSIS Data analysis methods must be chosen by qualified personnel to provide the deliverables requested by the customer. Where routine products are involved, routine procedures will be used. When non-routine products are desired, methods of analysis will be developed by qualified personnel. In all cases, documentation notes will be made which are sufficient to allow another qualified individual to understand the analysis procedures and to repeat them if necessary.

DATA STORAGE Data will be stored appropriately. Media manufacturer's defined criteria for long-term storage and duplication will be met. The primary considerations for retention of data are performance based. Data must be

2. 6.3 *Data Collection and Analysis*

Latest Revision: 9/30/1996

stored so that it can be reliably retrieved such that a qualified individual can understand how the data was taken and analyzed. The process should then be repeatable based on the stored information. Original unprocessed data must be stored to allow for future processing if required as more advanced techniques become available.

Retention requirements for records will be followed and are addressed in WBS element 1.5 Administrative Services.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

It is frequently necessary to retrieve or re-analyze data from as far back as the 1970s. Evolving technology may render data retrieval systems obsolete such that equipment may no longer exist to read outdated or no longer used media. The media itself may also deteriorate over time which could render it unreadable. The Readiness Program should address archiving and retrieving data critical to the stockpile stewardship mission.

2. 6.4 *Spill Testing*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The Spill Test Facility's (STF's) mission is to provide a unique facility that affords the opportunity for private industry, governmental agencies and other users to conduct hazardous materials testing and training. It is the only facility of its kind and is ideally suited for commercial and governmental test sponsors to develop verified data on prevention, mitigation, clean-up, and environmental effects of toxic and hazardous materials.

The STF has been utilized for releases of highly hazardous chemicals to develop and evaluate the dispersion patterns, mitigation techniques, remote monitoring capabilities and combustion characteristics of selected materials. The STF has also been used to assist the users in developing emergency planning guidelines that are required under United States Public Law 99-499, the Superfund Amendments and Reauthorization Act of 1986 (SARA), and other federal, state and international laws and regulations.

Spill testing is conducted according to the safety requirements identified via Process Safety Management. For each test or test series, a test plan is developed, reviewed, approved, and implemented to govern the specific testing operations. Test plans include test description, hazard analysis, and safety plans, and are intended to address specific environment, safety, and health risks and requirements. These plans also satisfy a state of Nevada requirement listed in the air quality permit which authorizes spill testing.

Transportation of chemicals to the STF is discussed under WBS 3.6.

In addition to tests that have been conducted at the STF, examples of ongoing work activities include:

- Construction/assembly of test sponsor equipment.
- Conduct spill testing.
- Data collection during test.
- Clean-up and site restoration at the completion of test.
- Maintenance of test equipment

Section 2 - Hazards and Management Issues:

2. 6.4 Spill Testing

Latest Revision: 9/30/1996

Workers at the STF experience the same general construction hazards as other work at the Nevada Test Site (NTS). Because of some of the specialized work that takes place during the build-up, testing and clean-up phase of each test, there are some unique hazards and management issues encountered.

Some of the specific personnel hazards associated with test activities at the STF include:

- Hazardous chemical handling.
- Hazardous chemical storage.
- Working in extreme weather conditions.
- Working with energized sources (mechanical, chemical, and electrical).

Environmental hazards include degradation of air or water due to the release of chemicals.

Management issues center around the absence of federal or state standards for worker protection covering deliberate controlled releases of hazardous chemicals at or above regulated concentrations.

Section 3 – Standards:

Standard	Title
29 CFR 1910.119	Process Safety Management of Highly Hazardous Chemicals
<i>Note Requirements for specifically controlling process safety. This "Pre-Startup Safety Review" should be used to adapt the facility requirements to each individual test.</i>	
40 CFR 302	Designation, Reportable Quantities and Notification – Notification Requirements
<i>Note This activity is exempt from reporting requirements under CERCLA, Section 101, as codified in 40 CFR 302.6 (Notification Requirements), because it is a federally-permitted facility. The state of Nevada is an authorized state with an approved Implementation Plan for permitting and enforcement under Clean Air Act regulations. Unlimited spills will be subject to the standards identified for the Environmental Protection Program, WBS 4.5.</i>	
40 CFR 68	Chemical Accident Prevention Provisions
<i>Note</i>	
Nevada Administrative Code (NAC) 445B.001 - 445B.395	Air Pollution

2. 6.4 Spill Testing

Latest Revision: 9/30/1996

***Note** This standard governs the air quality permit for the testing work.*

Nevada Administrative Code (NAC) Regulation of Highly Hazardous Substances
459.952 - 459.9542

***Note** This regulation mimics OSHA's process safety management process, but adds some requirements unique to Nevada. The spill test facility is the only place at the NTS which must comply with these regulations.*

42 USC 7403, et seq. Clean Air Act

***Note** Directs DOE, EPA and a federally-designated coordinating council to establish the STF and operate it as a field laboratory to develop and evaluate predictive models for atmospheric dispersion, and to evaluate the effectiveness of hazard mitigation and emergency response technology and transportation-related accidental releases of hazardous chemicals.*

Section 4 - Measurement Parameters:

- DOE/NV satisfaction with facility operation and maintenance.
- User and DOE/NV satisfaction with STF cost containment.
- User satisfaction with STF schedule management.
- User satisfaction with the quality of data collection.

Section 5 - Implementation Considerations:

Process Safety Management is implemented at the spill test facility. The Appendix to 29CFR1910.120 will be considered when developing the personal protective equipment requirements or other hazard mitigation features for the operation of this unique facility.

Nevada Air Quality Operating Permit 2625 (expiration 11/2/97) , issued to DOE/NV under the state's Clean Air Act authority contains certain requirements that must be complied with, including the submission of an Operations Plan. Some of these requirements, including the preparation and submission of the Operations Plan, are performed by DOE personnel.

Section 6 - Work Environment:

STF personnel are required to work in outdoor environments in all types of climatic conditions. Personnel are required to wear different levels of Personal Protective Equipment while performing certain job functions. Personnel also work in indoor office

2. 6.4 *Spill Testing*

Latest Revision: 9/30/1996

environments.

Section 7 - Uncertainties or Issues:

The recent changes in the state of Nevada regulations regarding air quality permits, the reduction of state staff available to process these permits and specifically DOE/NV's intention to stay at or below the Class II permit release limits may have an adverse effect on our ability to accept certain test programs at the site. This will also impact the renewal of the permit that expires in 11/2/97.

Section 8 - Training:

Mandatory training outlined in the ES&H standards that pertain to the STF.

STF employees receive test specific training which includes but is not limited to the following:

- Process/test description.
- Chemical awareness (HAZCOM).
- Personal Protective Equipment use and selection.
- Emergency response and notification.
- General facility safety rules.

Section 9 - Vulnerabilities:

N/A

2.7.1 Design Engineering

Latest Revision: 8/13/2002

Section 1 - Work Activity:

Design Engineering provides a broad base of design services in support of Department of Energy Operations at the Nevada Test Site and at off-site locations (e.g., WAMO, RSL). The range of services provided includes the design and analysis of Structures, Systems and Components (SSCs) representing a multitude of facility types, systems, and associated supporting infrastructure. Depending upon project requirements, functional support may be provided within one or more of the following technical disciplines: Civil, Architectural, Structural, Mechanical, Fire Protection, Electrical, Communications and Electronics.

The basic goal of the design process is to produce a design of high quality which meets the requirements, including required and appropriate codes and standards, in a cost-effective and timely manner. The primary characteristics of the design process which achieves this goal include the following:

- Clear understanding of the project or task objectives which includes definitive scope and design criteria.
- A specific plan for meeting the objectives with a design concept and execution plan.
- Early and specific definition and implementation of requirements and design baselines.
- Early documentation and approval of the design criteria, including codes and standards, before initiation of detailed design.
- Iterations that allow refinement of the design to optimize the results.
- Integration of pertinent constraints and predecessor design information, including application of codes, standards, and criteria used successfully for past design activities.
- Identification of design process logic and tasks requiring completion prior to proceeding to the next steps in the process.
- Progressive validation and acceptance of the design through various feedback and performance assessment activities.
- Documentation of intermediate results to establish and maintain a clear and complete understanding of the design thereby adhering to the codes and standards throughout the design process and serving as a basis for configuration control.
- Engineering project and task teams with clear accountability for engineering execution, technical adequacy, and installed costs.
- Engineering staff with clear accountability for the technical adequacy, including codes and standards used for the design.

To control the engineering work, various activities are broken down into tasks and sub-tasks, and milestones are established. For example, external or off-project technical design reviews by the engineering staff are established as key milestones in that they are integral

2. 7.1 *Design Engineering*

Latest Revision: 8/13/2002

parts of the management process and are used to determine the technical adequacy of the design, including the applicable codes and standards being used, during the design development. Integrated design reviews can be conducted for project's SSCs at the completion of conceptual, preliminary, and detailed design. These reviews assure that design requirements are properly integrated, and the work of off-project efforts are included.

Specific to a project or task the project or lead engineer is responsible for managing the development of the design to assure the incorporation of established requirements which reflect both client needs and those imposed by external agencies which again encompass required codes and standards. At the beginning of each project, task, or design effort, the project or lead engineer establishes the management control methods, interface control, and engineering group integration to ensure the above occurs.

The design process can be considered to have four major phases:

- Conceptual Design
- Preliminary Design (Title I)
- Detailed Design (Title II)
- Implementation (Title III including engineering support to construction)

However, the engineering scope may not always include all of these phases. If the project is initiated at the preliminary or detailed design phase, the project work plan should reflect the need to obtain and assimilate information from earlier phases performed by other organizations. The following is a brief description of each phase:

CONCEPTUAL DESIGN - The purpose of the conceptual design phase is two fold. The first objective is to define the firm requirements and identify options and solution with related costs. The requirements and their relative importance must be known. Clients and external agency requirements are identified and analyzed to ensure that the applicable design inputs and parameters have been considered in developing conceptual solutions.

This includes:

- Review of similar designs performed in the past
- Establishment of design criteria; system functional requirements site and environmental requirements equipment qualification requirements fire protection requirements codes and standards (further described and addressed below) quality / verification requirements regulatory / licensing requirements
 - * basic client needs and requirements
- Identification of affected and / or related design documents

2.7.1 Design Engineering

Latest Revision: 8/13/2002

- Reliability / availability, human factors, operations and maintenance requirements
- Identification of applicable construction, operations, and testing requirements

The outcome of the above objective should result in a requirements baseline that is mutually agreed-to by both the customer and Design Engineering. This serves as the basis for the initial Engineering Execution Plan for the next phase described below.

The second objective is to define and baseline the conceptual design. This may require several iterations to ensure that all requirements have been identified and potential solutions have been evaluated adequately. The contents of the conceptual design include:

- Functional objective of the design or statements of the task or problem
- Design Criteria established as discussed above, including applicable codes and standards to a level appropriate to the state of the design
- System design documentation and component interface identification
- Sketches or drawings of conceptual designs
- Schedule of major milestones
- Cost estimates (engineering, operating, total project)
- Analysis of alternative designs
- Identification of long-lead time procurement items
- Consequences of the concepts on success of tasks and items; such as other equipment quantities, facility size, risks, hazards (engineering will evaluate the hazards associated with a project's SSCs and select the appropriate design standards commensurate with those hazards while at the same time ensuring the appropriate level of quality and economy. This is further discussed later in this section.), etc.

It is also important that in a matrix organization the project engineer or lead engineer of a task or effort seek must seek technical review and input from the engineering functional technical disciplines comprising the engineering staff. After the completion of the staff reviews during this phase, the conceptual design is mutually agreed-to with the customer.

PRELIMINARY DESIGN - The preliminary design phase is the development, in more detail, of the design concept selected for each system and facility in the scope of the project. This involves the application of universally accepted formulas, equations, and other standard engineering practices in the design of SSCs. The engineering activities of this phase include: trade-off studies, refinement of cost estimates, detailed schedules supporting major milestones, materials testing and surveys, advanced procurement activities, etc. These preliminary designs typically involve application of concurrent engineering techniques including coordination among all necessary engineering groups

2.7.1 Design Engineering

Latest Revision: 8/13/2002

plus input from construction and startup personnel for compliance with design requirements, constructability, cost-effectiveness, and compatibility with schedule requirements.

Again following engineering staff reviews, which were mutually identified and agreed-to between staff and the project or task team, a meeting with the client may take place to ensure that the preliminary design is acceptable and approved. Following agreement, this forms the basis for the detailed design phase.

DETAILED DESIGN - The selected and documented preliminary design is developed into the detail design using the following:

- Walk-downs
- Design technical reviews
- Design calculations including finalization of applicable preliminary calculations performed
- Drawings
- Specifications
- Bill of materials / material requisition
- Vendor data
- Construction reviews of design
- Test procedures
- Construction / subcontract plan
- Turnover plan / beneficial occupancy

The control of the design process activities will assure that the developed detailed design still adheres to the requirements previously established in the preliminary design and validates the technical adequacy of the supporting engineering analysis. This process includes the accomplishment of design verification conducted by peer review, design review, alternate analysis, or qualification test.

Quality assurance, inherent to the engineering work process, is based upon performance compliant with established procedures covering the control of design input, design analysis and verification processes, design document preparation, and design change control. All records supporting audit of these processes are maintained by engineering.

IMPLEMENTATION - The design is constructed with the support of Design Engineering through interpretation of design documents and resolution of implementation problems. The SSCs are then tested and operated to verify that performance requirements have been met. Results from testing or operation which are not consistent with design requirements

2. 7.1 *Design Engineering*

Latest Revision: 8/13/2002

must be evaluated to determine the need for design changes. If a design change is needed, the change must be evaluated for possible adverse impacts on the original design and carried through each of the phases noted above. The design and engineering activities culminate with turnover of the systems and facilities and as-built drawings, as appropriate, to the client.

Section 2 - Hazards and Management Issues:

To control the engineering work, various activities are broken down into tasks and sub-tasks, and milestones are established. For example, external or off-project technical design reviews by the engineering staff are established as key milestones in that they are integral parts of the management process and are used to determine the technical adequacy of the design, including the applicable codes and standards being used, during the design development. Integrated design reviews can be conducted for project's SSCs at the completion of conceptual, preliminary, and detailed design. These reviews assure that design requirements are properly integrated, and the work of off-project efforts are included.

Specific to a project or task the project or lead engineer is responsible for managing the development of the design to assure the incorporation of established requirements which reflect both client needs and those imposed by external agencies which again encompass required codes and standards. At the beginning of each project, task, or design effort, the project or lead engineer establishes the management control methods, interface control, and engineering group integration to ensure the above occurs.

The design process can be considered to have four major phases:

- Conceptual Design
- Preliminary Design (Title I)
- Detailed Design (Title II)
- Implementation (Title III including engineering support to construction)

However, the engineering scope may not always include all of these phases. If the project is initiated at the preliminary or detailed design phase, the project work should reflect the need to obtain and assimilate information from earlier phases performed by other organizations. The following is a brief description of each phase:

CONCEPTUAL DESIGN - The purpose of the conceptual design phase is two fold. The first objective is to define the firm requirements and identify options and solution with related costs. The requirements and their relative importance must be know. Clients and external agency requirements are identified and analyzed to ensure that the applicable

2.7.1 Design Engineering

Latest Revision: 8/13/2002

design inputs and parameters have been considered in developing conceptual solutions.

This includes:

- Review of similar designs performed in the past
- Establishment of design criteria
 - * system functional requirements
 - * site and environmental requirements
- Equipment qualification requirements

Engineering provides a broad base of design services in support of Department of Energy Operations at the Nevada Test Site and at off-site locations for example, WAMO, RSC). The range of services provided includes the design and analysis of Structures, Systems and Components (SSCs) representing a multitude of facility types, systems, and associated supporting infrastructure. Depending upon project requirements, functional support may be provided within one or more of the following technical disciplines: Civil, Architectural, Structural, Mechanical, Fire Protection, Electrical, Communications and Electronics.

The basic goal of the design process is to produce a design of high quality which meets the requirements, including required and appropriate codes and standards, in a cost-effective and timely manner. The primary characteristics of the design process which achieves this goal include the following:

- Clear understanding of the project or task objectives which includes definitive scope and design criteria.
- A specific plan for meeting the objectives with a design concept and execution plan.
- Early and specific definition and implementation of requirements and design baselines.
- Early documentation and approval of the design criteria, including codes and standards, before initiation of detailed design.
- Iterations that allow refinement of the design to optimize the results.
- Integration of pertinent constraints and predecessor design information, including application of codes, standards, and criteria used successfully for past design activities.
- Identification of design process logic and tasks requiring completion prior to proceeding to the next steps in the process.
- Progressive validation and acceptance of the design through various feedback and performance assessment activities.
- Documentation of intermediate results to establish and maintain a clear and complete understanding of the design thereby adhering to the codes and standards throughout the design process and serving as a basis for configuration control.
- Engineering project and task teams with clear accountability for engineering execution,

2.7.1 Design Engineering

Latest Revision: 8/13/2002

technical adequacy, and installed costs.

- Engineering staff with clear accountability for the technical adequacy, including codes and standards used for the design.
 - * fire protection requirements
 - * codes and standards (further described and addressed below)
 - * quality / verification requirements
 - * regulatory / licensing requirements
 - * basic client needs and requirements
- Identification of affected and / or related design documents
- Reliability / availability, human factors, operations and maintenance requirements
- Identification of applicable construction, operations, and testing requirements

The outcome of the above objective should result in a requirements baseline that is mutually agreed-to by both the customer and Design Engineering. This serves as the basis for the initial Engineering Execution Plan for the next phase described below.

The second objective is to define and baseline the conceptual design. This may require several iterations to ensure that all requirements have been identified and potential solutions have been evaluated adequately. The contents of the conceptual design include:

- Functional objective of the design or statements of the task or problem
- Design Criteria established as discussed above, including applicable codes and standards to a level appropriate to the state of the design
- System design documentation and component interface identification
- Sketches or drawings of conceptual designs
- Schedule of major milestones
- Cost estimates (engineering, operating, total project)
- Analysis of alternative designs
- Identification of long-lead time procurement items
- Consequences of the concepts on success of tasks and items; such as other equipment quantities, facility size, risks, hazards (engineering will evaluate the hazards associated with a project's SSCs and select the appropriate design standards commensurate with those hazards while at the same time ensuring the appropriate level of quality and economy. This is further discussed later in this section.), etc.

It is also important that in a matrix organization the project engineer or lead engineer of a task or effort seek must seek technical review and input from the engineering functional technical disciplines comprising the engineering staff. After the completion of the staff reviews during this phase, the conceptual design is mutually agreed-to with the customer.

2. 7.1 *Design Engineering*

Latest Revision: 8/13/2002

PRELIMINARY DESIGN - The preliminary design phase is the development, in more detail, of the design concept selected for each system and facility in the scope of the project. This involves the application of universally accepted formulas, equations, and other standard engineering practices in the design of SSCs. The engineering activities of this phase include: trade-off studies, refinement of cost estimates, detailed schedules supporting major milestones, materials testing and surveys, advanced procurement activities, etc.

These preliminary designs typically involve application of concurrent engineering techniques including coordination among all necessary engineering groups plus input from construction and startup personnel for compliance with design requirements, constructability, cost-effectiveness, and compatibility with schedule requirements.

Again following engineering staff reviews, which were mutually identified and agreed-to between staff and the project or task team, a meeting with the client may take place to ensure that the preliminary design is acceptable and approved. Following agreement, this forms the basis for the detailed design phase.

DETAILED DESIGN - The selected and documented preliminary design is developed into the detail design using the following:

- Walk-downs
- Design technical reviews
- Design calculations including finalization of applicable preliminary calculations performed
- Drawings
- Specifications
- Bill of materials / material requisition
- Vendor data
- Construction reviews of design
- Test procedures
- Construction / subcontract plan
- Turnover plan / beneficial occupancy

The control of the design process activities will assure that the developed detailed design still adheres to the requirements previously established in the preliminary design and validates the technical adequacy of the supporting engineering analysis. This process includes the accomplishment of design verification conducted by peer review, design

2. 7.1 **Design Engineering**

Latest Revision: 8/13/2002

review, alternate analysis, or qualification test.

Quality assurance, inherent to the engineering work process, is based upon performance compliant with established procedures covering the control of design input, design analysis and verification processes, design document preparation, and design change control. All records supporting audit of these processes are maintained by engineering.

IMPLEMENTATION - The design is constructed with the support of Design Engineering through interpretation of design documents and resolution of implementation problems.

The SSCs are then tested and operated to verify that performance requirements have been met. Results from testing or operation which are not consistent with design requirements must be evaluated to determine the need for design changes. If a design change is needed, the change must be evaluated for possible adverse impacts on the original design and carried through each of the phases noted above. The design and engineering activities culminate with turnover of the systems and facilities and as-built drawings, as appropriate, to the client.

Section 3 – Standards:

Standard	Title
National Electrical Code (NEC)	Applicable Standards
<i>Note The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.</i>	
Uniform Building Code (UBC)	Applicable Standards
<i>Note The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.</i>	
Uniform Fire Code (UFC)	Applicable Standards

2. 7.1 Design Engineering

Latest Revision: 8/13/2002

Note *The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.*

Uniform Mechanical Code (UMC)	Applicable Standards
-------------------------------	----------------------

Note *The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.*

Uniform Plumbing Code (UPC)	Applicable Standards
-----------------------------	----------------------

Note *The proper application of standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of standards will be identified during the establishment of the project-specific Design Criteria Package, as those which are both necessary and sufficient to fully satisfy a particular project's requirements. This comprehensive set of standards will vary from project to project.*

DOE P 450.3	Closure Process for Necessary and Sufficient Sets of Standards
-------------	---

Note *Authorizes use of the Necessary and Sufficient Process for standards-based ES&H management.*

Section 4 - Measurement Parameters:

The parameter that provides the most immediate measurement of the overall effectiveness of the engineering work process is project design cost and schedule. When the engineering design effort is not encumbered by the application of unnecessary design standards and/or process requirements, some savings in both design costs and scheduled time of performance may be attained. These are metrics that can be easily measured within the current project controls environment.

Other high level measures of design process effectiveness include:

2. 7.1 *Design Engineering*

Latest Revision: 8/13/2002

Total Installed Cost

Total Life Cycle Cost

Ratio of Engineering Cost to Total Installed Cost

Section 5 - Implementation Considerations:

This work activity, the scope of which includes having personnel occasionally visit the site, will also be governed by other applicable program requirements developed through other WBS elements, such as 29 CFR1910, 29CFR1926 or Mine Safety and Health Administration Standards. WBS 4.7, Quality Assurance, addresses some of the applicable requirements to non-reactor nuclear facilities (i.e., pertaining to "activities or operations"), in accordance with 10CFR830.3 and 830.120.

Standards Identification - The identification of codes and standards in the design process described above results in providing the best value to the client. As briefly described in section 1.0, the selection of the proper codes and standards for a project is based on those particular requirements of that project thereby allowing the product to be much more cost effective. The design process also illustrates that this selection is based on numerous sources of expertise within Design Engineering to ensure that the selected codes and standards are both necessary and sufficient to fully satisfying the project's validated requirements and constraints. As described in the brief review of the design process in section 1.0, the following contribute to proper code and standard selection:

- engineers selected for that particular project or effort on the basis of their qualifications to do the work
- participation and accountability of senior engineers, lead engineers, and project engineers in the selection of the codes and standards
- thorough documentation of the selection process and decision basis
- peer checking and verification on the project or task to ensure correct and adequate selection
- technical design reviews by staff members
- effective use of prior designs
- use of codes and engineering standards that have been successfully used in the past
- client participation to capture code or standard preferences, if any.

The implementation of the requirements of general codes listed in Section 3.0 may subsequently bring into play, as determined by the design engineer, standards and guidelines of consensus/industry groups such as the following:

2.7.1 Design Engineering

Latest Revision: 8/13/2002

- The Asphalt Institute
- ASCE - American Society of Civil Engineers
- AWWA - American Water Works Association
- ANSI - American National Standards Institute
- NACE - National Association of Corrosion Engineers
- ASTM - American Society for Testing and Material
- API - American Petroleum Institute
- AASHTO - American Association of State Highway and Transportation Officials
- The Hydraulic Institute
- USACE - U.S. Army Corp of Engineers
- ACI - American Concrete Institute
- AISC - American Institute of Steel Construction
- AWS - American Welding Society
- MBMA - Metal Building Manufacturer's Association
- NCMA - National Concrete Masonry Association
- PCA - Portland Cement Association
- SDI - Steel Deck Institute
- SJI - Steel Joist Institute
- ASME - American Society of Mechanical Engineers
- NFPA - National Fire Protection Association
- ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
- ACGIH - American Conference of Governmental Industrial Hygienists
- IEEE - Institute of Electrical and Electronic Engineers
- REA - Rural Electrification Administration
- IES - Illumination Engineering Society of America
- NEMA - National Electrical Manufacturer's Association
- LPI - Lightning Protection Institute
- NTIA - National Telecommunications and Information Administration
- EIA - Electronics Industries Association
- ITU - International Telecommunications Union
- TIA - Telecommunications Industries Association
- SMACNA, HVAC Systems - Duct Design - Sheet Metal and Air-Conditioning Contractors' National Association, HVAC Systems - Duct Design
- DOE-STD-1020-94 - Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities
- DOE-STD-1021-93 - Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components

Substantial time and cost savings could be realized from streamlining the design review

2.7.1 Design Engineering

Latest Revision: 8/13/2002

process. Current requirements mandate a 15 working day external (DOE) review cycle, which can result in as much as one calendar month between the issue for review date and the conduct of the final review meeting. In addition, current procedures require design review and signature approvals from many different entities which may not have any involvement in, or are not affected by the particular design. A screening of the project during the preliminary design phase, to establish the specific organizational entities that will need to review and approve the final design, would expedite the design review process and reduce associated costs.

Section 6 - Work Environment:

The engineering work activity is performed in a technical office environment. There are occasions when the engineering work activity requires a site or field investigation. However, this represents a small percentage of the overall work process.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2. 7.2 *Drafting*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

"Drafting is the language of engineering. Drafting communicates the intent of the design to the constructor." – Author Unknown

Drafting provides the graphical representation of design requirements and existing physical conditions for all engineered buildings, structures, parts, components, and systems for conventional as well as non-reactor nuclear facilities. Drafting also provides instructional drawings including shop details, assembly procedures, machinery placement, crane positioning and rigging, and general logistics type planning documents. Drafting activities do not, by definition, include design activities. However, drafting activities as performed by senior draftsman, designers, and engineers do, by their nature, encompass and provide design engineering control. Design engineering control is further elaborated through a checking process which confirms geometry, general language and spelling, adherence to drafting standards, and reproduction feasibility. Drawings may be interpreted as legal documents communicating the intent of the design.

Drafting work is controlled by the following:

Criteria: Drafting accepts and interprets a design or project criteria provided by Design Engineering to develop a consistent depiction of SSCs and SSC requirements into a physical design. Transformation of the criteria is accomplished through consultation with engineering, project engineering, the client, or other responsible parties involved with the final product.

Standards: Drafting follows standards for drawing creation that ensure the final drawing can be understood by the intended users.

Client: Drafting provides modified and customized graphic deliverables depending on client need.

Section 2 - Hazards and Management Issues:

Hazards associated with this work include those commonly encountered in an office environment as well as during field trips to construction sites to gather data.

Management support and direction to enforce a CAD/CAE standard, including implementation of a uniform training program, selection of a standard CAD/CAE file format, and development of a CADrafting Manual, are important for realization of full matrix capability. Lack of full matrix capability disallows gains that could be made to

2. 7.2 Drafting

Latest Revision: 9/30/1996

achieve a level work force and provide improved and more responsive customer support on projects. Additionally, advanced system enhancement is made more difficult when resources are diluted in support of multiple CAD/CAE systems.

Section 3 – Standards:

Standard	Title
American National Standards Institute (ANSI) IAWS A2.4	Standard Symbols for Welding, Brazing and Nondestructive Examination
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.</i>	
American National Standards Institute (ANSI) Y1.1	Abbreviations for use on Drawings and in Text
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.</i>	
American National Standards Institute (ANSI) Y14.1	Drawing Sheet Size and Format
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.</i>	
American National Standards Institute (ANSI) Y14.15	General Electronic Diagrams
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.</i>	
American National Standards Institute (ANSI) Y14.2	Surface Texture Symbols
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.</i>	
American National Standards Institute (ANSI) Y14.5M	Dimensioning and Tolerancing
<i>Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its</i>	

2. 7.2 Drafting

Latest Revision: 9/30/1996

typical implementation standards with the additional requirements.

American National Standards Institute (ANSI) Y32.16	Reference Designators (schematics and PCB)
--	---

Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

American National Standards Institute (ANSI) Y32.2 and Y32.14	Graphic Symbols (schematics)
--	------------------------------

Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

American National Standards Institute (ANSI) IPC-A-600	Printed Wiring Bd. (fabrication)
---	----------------------------------

Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

American National Standards Institute (ANSI) IPC-D-275	Circuit Card Assemblies
---	-------------------------

Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

Bechtel Design Drawing Standards	Applicable Standards
----------------------------------	----------------------

Note RSN Design Drawing Standards as adopted by Bechtel.

Bechtel Drafting Manual	Applicable Standards
-------------------------	----------------------

Note RSN Manual as adopted by Bechtel.

42 USC 12111, et seq.	Americans with Disabilities Act (ADA)
-----------------------	---------------------------------------

Note When a standard selected by Engineering imposes specific drafting requirements, the Drafting (CAD/CAE) work activity will supplement its typical implementation standards with the additional requirements.

Section 4 - Measurement Parameters:

Quality, timeliness, and cost parameters are used to provide guidance for the measurement of drafting work.

Section 5 - Implementation Considerations:

2. 7.2 *Drafting*

Latest Revision: 9/30/1996

Standard implementation is the core to the creation of uniform drafting work. The proper application of these standards in conjunction with the engineering work process will result in an acceptable level of potential hazard mitigation as well as providing for the best value to the client. A comprehensive set of engineering standards will be identified during the establishment of the Project Execution Plan, as necessary to comply with the particular project requirements.

This work activity, the scope of which includes having personnel occasionally visiting the NTS, will also be governed by other applicable program requirements developed through other WBS elements. WBS 4.7, Quality Assurance, addresses the requirements applicable to non-nuclear reactor facilities (i.e., pertaining to "activities or operations"), in accord with 10CFR 830.3 and 830.120.

The set of implementation standards identified within this document are currently being utilized in support of the CAD/CAE work process.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2. 7.3 *Estimating*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity involves the production of cost estimates and schedules for projects funded by DOE/NV. A project could be any type of work activity with defined starting and ending points and some well defined work process. Projects can range from construction of a building or system to environmental management programs or administrative functions. A project can be any type of activity which is managed for timeliness of completion and/or cost-effectiveness to the client. Estimates and schedules are used by managers of projects, project team members and clients to plan required actions, forecast resource requirements and gauge progress.

The actual work process involves development of a basic time line, then development of a more detailed schedule and the resource loading of the proper manpower, equipment and materials to finish the required tasks within the required time frame. Estimates are completed when the total units of man hours, equipment hours, and material quantities are known and multiplied by the proper cost factors for each cost category. The proper overhead charges, labor loads, administrative burdens, inflationary figures, etc., must then be added to the estimate to obtain the complete accurate cost projection for the project. Major projects or ones with some level of uncertainty have a contingency added, which is an assigned percentage of the total project cost.

There are no specific laws or industrial standards which govern the estimating or scheduling process. The process used must only meet the business standards of the contractor performing the estimate, as well as any special client requirements for format, accuracy and completeness.

In outside industry, many companies guard their methods of producing estimates for bidding purposes as proprietary information.

Section 2 - Hazards and Management Issues:

There could be physical hazards associated with office environments or field locations personnel are required to visit to obtain site specific information effecting cost or schedule. These hazards would be equivalent to those faced routinely in industry.

Schedules and estimates are the two basic tools contractor and client managers have to plan work activities. Accuracy and completeness of an estimate or schedule are the primary management considerations. Since change is inevitable, timeliness and ease of adjusting schedules and estimates are also of importance to management.

2. 7.3 *Estimating*

Latest Revision: 9/30/1996

Section 3 – Standards:

Standard	Title
NONE	NONE

***Note** There are no regulatory or statutory methods for estimating and scheduling. It is expected that organizations conducting work for DOE/NV will develop, implement and maintain a system for estimating and scheduling work activities to permit prudent allocation of resources. The DOE Life Cycle Asset Management Order is incorporated into the N&S set for WBS 1.3.6. This LCAM process contains elements and requirements that relate to the estimating task. Consideration of the features of the LCM program of WBS 1.3.6 should be included in the development of the implementing procedures for Estimating and Scheduling.*

Section 4 - Measurement Parameters:

Actual project performance should be recorded and compared to baseline estimates and schedules to gauge how accurately projects are being forecasted. Costs should be estimated within predetermined limits of accuracy established with the client. Schedules should have no major omissions or unforeseen dependencies. Project files should be maintained in an orderly manner.

Section 5 - Implementation Considerations:

This work activity, the scope of which includes having personnel occasionally visit the site, will also be governed by other applicable program requirements developed through other WBS elements, such as 29 CFR1910, 29CFR1926 or Mine Safety and Health Administration Standards. WBS 4.7, Quality Assurance, addresses some of the applicable requirements to non-reactor nuclear facilities (i.e., pertaining to "activities or operations"), in accordance with 10CFR830.3 and 830.120.

Adoption of the contractual standard began with the transition to the combined NTS M&O contract. See the BNC Manual, "Planning and Controls Department Project Controls Procedures, PCP-M1," 2/20/96. Sections PCP-1.6 and PCP-1.8 contain procedures for the estimating and scheduling of projects.

Effective estimating and scheduling also play important roles in the utilization and maintenance of physical assets.

(It should be noted that estimating and scheduling are distinct from budgeting and

2. 7.3 *Estimating*

Latest Revision: 9/30/1996

accounting activities and are not governed by the standards identified in the associated WBS documentation.)

Section 6 - Work Environment:

The work of estimating and scheduling is usually conducted in an office environment using office materials and equipment, including personal computers and printers. Personnel involved in estimates and schedules may often times visit a job site to obtain first-hand information and be exposed to the field conditions present.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

There is training offered for each type of computer software used in these work activities such as; PRIMAVERA, MICROFRAME and various spread sheet type programs.

Section 9 - Vulnerabilities:

It is possible that cost overruns and/or missed milestones on projects could lead to the loss of business opportunities, the loss of return customers to the contractor and the loss of DOE institutional credibility.

2. 7.4 *Visual Inspections and Quality Control Inspections*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Work under this WBS element includes independent inspection services provided in support of engineering and construction activities. Inspections are planned using design documents, technical data, and code requirements. The work is executed so as to verify and document conformance or nonconformance of construction products, processes and construction materials. Inspection scope varies dependent upon project need to perform the following:

- Furnish project inspection plans
- Furnish construction status reports
- Verify governing lines and benchmarks
- Verify conformance to engineering design
- Verify conformance to required codes and standards
- Furnish "as-built" record drawings and specifications
- Furnish required completion certifications

Field inspection activities can be broken down into the following disciplines:

- Concrete and Grout
- Soils
- Structural
- Electrical
- Mechanical
- Mining
- Drilling

Inspection Services are provided at construction sites, material production plants, fabrication facilities, and underground tunnel locations.

Section 2 - Hazards and Management Issues:

Inspectors are often in situations where they are exposed to any number of potential hazards common to construction-type work involving tools and machinery, bulk materials, gases, dust, noise, and other hazards. Inspectors may cover multiple projects on a daily basis which requires that the individual be very aware of the work environment in order to quickly familiarize his/herself to potential dangers. All the inspected projects have hazards that are typical of ES&H hazards encountered on construction sites throughout industry.

Important financial hazards and liabilities could be caused by poor quality or out of

2. 7.4 Visual Inspections and Quality Control Inspections

Latest Revision: 9/30/1996

specification building products or workmanship. Guarding against the harmful results of poor quality, sub-standard or faulty construction is a primary management concern. Following the inspection standards identified serves to assure management that work products are as designed and/or on par with nationally accepted criteria.

Section 3 – Standards:

Standard	Title
Project Specific Design Specifications	Project Specific Design Specifications

***Note** The following are the most common consensus organizations with standards used by inspectors: American National Standards Institute (ANSI); American Society of Mechanical Engineers (ASME); Institute of Electrical and Electronic Engineers (IEEE); Instrument Society of America (ISA); American Concrete Institute (ACI); American Welding Society (AWS); American Society for Testing and Materials (ASTM); American Assoc. of State Highway Traffic Officials (AASHTO); American Water Works Association (AWWA); State of Nevada Department of Transportation (NDOT); Federal Specifications (FS); Concrete Reinforcing Steel Institute (CRSI); Steel Structures Painting Council (SSPC); American Institute of Steel Construction (AISC); National Electrical Code(NEC); and Uniform Building Code (UBC). Inspection will also follow manufacturer's specifications associated with the design, as appropriate.*

Section 4 - Measurement Parameters:

In private industry, as well as at the NTS, the prime measurement parameter would be customer satisfaction with the inspection report. The report must accurately record the construction in a concise, consistent manner. In addition, the report must be provided in a timely fashion to the authority requesting the inspection.

Provide a proactive inspection service. Minimize rework by informing construction personnel of possible problems as they develop. Minimize the number of nonconformance reports that are rejected as invalid.

Section 5 - Implementation Considerations:

This work activity, the scope of which includes having personnel occasionally visit the site, will also be governed by other applicable program requirements developed through other WBS elements, such as 29 CFR1910, 29CFR1926 or Mine Safety and Health Administration Standards. WBS 4.7, Quality Assurance, addresses some of the applicable requirements to non-reactor nuclear facilities (i.e., pertaining to "activities or operations"),

2.7.4 Visual Inspections and Quality Control Inspections

Latest Revision: 9/30/1996

in accordance with 10CFR830.3 and 830.120.

The national standards and regulations are used when they are applicable. In addition, the procedures of the National Laboratories or other customers are used, as required, for special purposes.

National certification from AWS, ACI, ICBO and IAEE are long term goals. Implementation of industry standards for the qualification of inspectors will require the passing of nationally recognized tests. This will take several years and will be planned with the affected union in order to be consistent in approach.

The Uniform Building Code (UBC) is the most commonly used document to specify what inspections are required for the building industry. In most cities across the nation the UBC is the basis for the inspections required for building construction. Ultimately the design engineer working with owners/agencies will determine if any additional inspection requirements are needed to insure the construction meets the design intent. Not all construction at NTS fits within the traditional UBC design parameters, but the same qualifications for inspectors does fit and should apply. In addition, the owner is normally represented by an insurance company that also provides a third party inspection to protect their investment as well as the owner's interest. For DOE facilities or projects, this inspection is usually performed by technically qualified architect-engineers or DOE personnel performing Title III inspections.

Section 6 - Work Environment:

Inspection activities are conducted indoors, outdoors and in underground facilities. There are no special conditions identified. Personnel involved visit many job sites to perform their duties and are exposed to all of the field conditions present.

Section 7 - Uncertainties or Issues:

Clients and users have differing views of what the inspectors areas of responsibility are. It is in the best interest of the NTS that procedures be modified to clear up any misconception of the limits of responsibility of inspectors and to redistribute responsibilities to other key members in the project team that are better suited to perform tasks outside the inspectors area of expertise.

Section 8 - Training:

The training and certification of inspectors has not been set to the nationally recognized standards. NTS inspectors are supplied by the Operating Engineers Union. Bechtel Nevada is working with the inspectors and their union to upgrade the certification

2. 7.4 *Visual Inspections and Quality Control Inspections*

Latest Revision: 9/30/1996

standard and to provide field engineering support for the inspectors until certifications can be achieved by them. Management needs to address in the union contract a minimum certification standard required to support NTS activities.

Section 9 - Vulnerabilities:

N/A

2. 7.5 *Surveying*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Survey Services provides surveying support to construction, network control, and engineering design. Although survey services are provided primarily in the state of Nevada, more specifically on the Nevada Test Site, some work could be done at other locations out of state. If that occurs, appropriate national and state regulations would be applied to perform the work.

Support to construction consists of the layout of stakes, located both horizontally and vertically, that construction personnel utilize to position structures or earthwork; periodic checking of projects to ensure compliance with design criteria specified on approved drawings; and providing final "as-built" configurations incorporating any changes or field modifications in project design. This support is also provided for tunnel construction.

Survey support to the Environmental Restoration and Waste Management (ERWM) projects is defined by relevant criteria that is site specific. This includes topographic surveys or location surveys in areas of environmental concern. These areas of concern may contain radioactivity, hazardous waste, or industrial waste.

Network control is the surveying of existing control monuments or establishing new monuments that are tied to the National Geodetic Survey (NGS) National Geodetic Control Network. The existing monuments are located, for the most part, on remote mountain tops throughout the Nevada Test Site.

Engineering design utilizes survey to provide the existing topographic and planimetric features to be used as a background for a design drawing. This information is transmitted to design via electronic means. Survey Services is called upon to check design drawings prior to them being issued for construction.

Survey Services also provides Users with data pertaining to drill hole locations, geodetic positions, volume determinations, and other pertinent survey information.

Section 2 - Hazards and Management Issues:

The major hazard associated with the survey work is in the area of support to ERWM. The radiological and hazardous waste contaminants require that surveys be performed in various degrees of anti-contamination apparel depending on the level of contamination. Other hazards are typical of those Environmental, Safety, and Health hazards encountered at standard construction site operations. An exception to these hazards may be those encountered in hiking or driving to remote sites.

2. 7.5 Surveying

Latest Revision: 9/30/1996

A management issue that needs to be addressed is the accuracy of surveying performed at the test site. The accuracy should either be performed to a general standard or specific requirements identified by the project design documents.

Section 3 – Standards:

Standard	Title
54 FR 25318, Issue 113, 6/14/89	Section 5.0 North American Datum Affirmation of 1983 (NAD 83)
<i>Note</i>	
Federal Geodetic Control Committee, 1984	Standards and Specifications for Geodetic Control Networks
<i>Note</i> The specific standard that is used from this publication addresses the accuracy of surveys performed. This standard is addressed as a distance accuracy:	
1:a	
$a = d/s$;	
d = distance accuracy denominator	
s = propagated standard deviation of distance between survey points obtained from a least squares adjustment.	
Nevada Revised Statutes (NRS) 278	Planning and Zoning
<i>Note</i> Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.	
Nevada Revised Statutes (NRS) 327	Nevada Coordination System
<i>Note</i> Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.	
Nevada Revised Statutes (NRS) 329	Perpetuation of Corners
<i>Note</i> Required for work off the NTS in Nevada. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.	
Nevada Revised Statutes (NRS) 625	Professional Engineers and Surveyors Manual of Instructions for the Survey of Public Lands of the United States
<i>Note</i> It is intended that NRS 625 will be the standard for surveying work in Nevada for on or off the NTS. Analogous statutes for other states will be used as applicable for projects or sites outside of Nevada.	

2.7.5 Surveying

Latest Revision: 9/30/1996

Section 4 - Measurement Parameters:

This activity is a service based function that operates to satisfy the needs of different clients on a daily basis. The meaningful measurement parameter would be the opinion of these clients on how well this service was provided. Was the job done in a timely manner? Was the job done for the cost that was estimated? Was the job done accurately?

Section 5 - Implementation Considerations:

This work activity, the scope of which includes having personnel occasionally visit the site, will also be governed by other applicable program requirements developed through other WBS elements, such as 29 CFR1910, 29CFR1926 or Mine Safety and Health Administration Standards. WBS 4.7, Quality Assurance, addresses some of the applicable requirements to non-reactor nuclear facilities (i.e., pertaining to "activities or operations"), in accordance with 10CFR830.3 and 830.120.

Immediate implementation of these standards is possible, with the exception of the Federal Register Vol. 54, No. 113. The Register states "The National Geodetic Survey (NGS) has completed the redefinition and readjustment of the North American Datum of 1927 (NAD 27), creating the North American Datum of 1983 (NAD 83). The interagency Federal Geodetic Control Committee (FGCC) affirmed NAD 83 is the official civilian horizontal datum for surveying and mapping activities performed or financed by the Federal Government. Furthermore, to the extent practicable, legally allowable, and feasible, all Federal agencies using or producing coordinate information should provide for an orderly transition from NAD 27 to NAD 83." At the NTS all data has been historically provided in NAD 27 coordinates in feet. The exception to this is information for the purpose of environmental permitting with the state. Nevada Revised Statutes require reporting in NAD 83, with the coordinate values in meters.

The Survey Services group has begun resurveying the existing NTS control for the adoption of NAD 83. This adoption will have to be accomplished with the support of DOE/NV. Since the coordinate values are part of the metrication process.

DOE Order 6430.1a, Division 2, Section 0202 - Surveying, is a duplication of other standards used. Not only is it a duplication but it also imposes additional requirements that add to the cost of surveying at the NTS, but not to the quality of the product. An example is the section on temporary control. By the DOE Order the requirements for temporary control are as stringent as for permanent control, i.e., monuments to be used and guard posts to protect them. By the implementation of the standards in Section 3, the additional and duplicated requirements as mandated by DOE Orders will be eliminated, providing for

2. 7.5 *Surveying*

Latest Revision: 9/30/1996

a more cost effective means of providing survey services.

Consideration should be given to developing a remote / desert / mountain safety program for work activities conducted in these unusual environments.

Section 6 - Work Environment:

Work in remote desert and mountain locations is common.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2. 8 *Construction*

Latest Revision: 8/22/2002

Section 1 - Work Activity:

This work activity is intended to cover common construction activities. Special construction of nuclear facilities or other critical use facilities with special requirements are not covered here. This activity includes modifications to existing facilities. Maintenance and repair of existing facilities is addressed in WBS 3.4, Facility Maintenance.

Site Work

Site work pertains to all construction related ground preparation activities for buildings, as well as for other infrastructure elements (roads, water systems, sewer systems, power systems, etc.). Site work also includes excavation for environmental restoration work. Site work includes clearing, grubbing, watering, cut and fill, rough grading, finish grading, compaction, trenching, excavation, and demolition of existing facilities and utilities. Most of this work is accomplished through the operation of heavy equipment such as dozers, rippers, scrapers, trenchers, rollers, back hoes, graders, loaders and trucks. Excavations are still done by hand when necessary by laborers using pick and shovel or various pneumatic tools. If rock or other special conditions are encountered during site work, drilling and blasting may also be employed. Demolition of existing facilities and utilities may require the use of explosives.

Local codes in North Las Vegas or in cities or counties where other offsite operations are located would need to be complied with. These would be identified during the criteria development phase of the engineering design.

Structural

Structural work activities pertain to all building construction activities and methods as well as to other adjoining appurtenances and utilities. These work activities cover the entire scope of building work from measuring, staking, form setting, concrete pouring, pumping and finishing, framing, erection, siding, covering, sheathing, and roofing, through caulking, finishing, testing, plastering, painting, and cleaning for final use.

Mechanical

Mechanical work activities pertain to the construction, assembly, and installation of the physical plant portion of buildings and systems. This may include air systems, boilers, condensate and feed system, fire suppression systems, water treatment systems, compressed gas systems, diesel engines and support systems. Work activities include pipe fitting, welding, placing, leveling, aligning and anchoring equipment and charging refrigerant systems.

2. 8 *Construction*

Latest Revision: 8/22/2002

Electrical

Electrical work pertains to activities required to build, install and construct all components of a building or system which are electrical in nature. The components could be transformers, power feeds, power distribution systems, wiring, alarms, controls or communications systems as well as the supports for these components. The work methods comprise placing, bending and installing conduit, pulling and running wire, as well as splicing, welding, soldering, crimping, terminating.

Section 2 - Hazards and Management Issues:

General occupational hazards to workers present during all the above activities are normal for this segment of the general construction industry. Construction hazards are numerous and may include the following abbreviated list for example:

- injuries from slips, trips and falls
- injuries from falling objects or material
- hearing loss from excessive loud noises
- skin punctures from tools, sharp edges, slivers
- injuries from the unplanned release of stored energy
- eye injuries from blown or deflected materials
- electrical shocks
- equipment rollovers and other accidents
- trench cave-ins and slope failures
- skin injuries from chemical contact
- respiratory ailments from airborne dust or chemicals
- exposure to various forms of radiation
- flash burns to the eyes or skin

Environmental degradation can be caused by site development work during construction. Damage to antiquities, endangered or threatened species of plants or animals, disturbance of wetlands or flood plains and related air and water pollution are some of the possible environmental hazards.

Important financial hazards and liabilities could be caused by poor quality, or out of specification products or workmanship. Guarding against the harmful results of poor quality, sub-standard or faulty construction is a primary management concern. By following the standards identified, management is assured that work products will be on par with nationally accepted criteria.

Section 3 – Standards:

2. 8 **Construction**

Latest Revision: 8/22/2002

Standard	Title
29 CFR 1910.109	Occupational Safety and Health Standards Subpart H. Hazardous Materials, Explosives, and Blasting Agents
<i>Note</i> Added by BCR 2002-022.	
29 CFR 1926, Subpart T	Safety and Health Regulations for Construction, Subpart T- Demolition
<i>Note</i> Added by BCR 2002-022.	
29 CFR 1926, Subpart U	Safety and Health Regulations for Construction, Subpart U - Blasting and the Use of Explosives
<i>Note</i> Added by BCR 2002-022.	
American Water Works Association (AWWA)	Applicable Standards
<i>Note</i> The American Water Works Association is the recommended standard for water supply systems. The Nevada Administrative Codes set the standards for sewage and water supply systems.	
National Electrical Code (NEC)	Applicable Standards
<i>Note</i> The National Electric Code (NEC) is the normal standard applicable for construction of electrical utilization systems in the United States. The NEC is referenced in state and local building codes for all systems except those of 600 volts or higher.	
Uniform Building Code (UBC)	Applicable Standards
<i>Note</i> The Uniform Building Code (UBC) is the normal standard applicable for State and local building regulations and is familiar to all construction crafts. The UBC states the minimum acceptable parameters for this type construction that has been developed over time. This is the standard in Clark County, Nevada and exceeds the standards of Nye County, Nevada where the NTS is located.	
Uniform Fire Code (UFC)	Applicable Standards
<i>Note</i>	
Uniform Mechanical Code (UMC)	Applicable Standards
<i>Note</i> The Uniform Plumbing Code (UPC) and Uniform Mechanical Code (UMC) are the usual standards applicable for all State and local building regulations and are familiar to the applicable crafts. These codes state the minimum acceptable parameters for this type construction that have been developed by	

2. 8 **Construction**

Latest Revision: 8/22/2002

public building officials.

Uniform Plumbing Code (UPC)

Applicable Standards

Note *The Uniform Plumbing Code (UPC) and Uniform Mechanical Code (UMC) are the usual standards applicable for all State and local building regulations and are familiar to the applicable crafts. These codes state the minimum acceptable parameters for this type construction that have been developed by public building officials.*

Nevada Administrative Code (NAC)

Water Pollution

445.070 - 445.241

Note

Nevada Administrative Code (NAC)

Air Pollution

445B.001 - 445B.395

Note *Nevada Administrative Code [NAC] 445B.001 through 445B.395, Nevada Revised Statute [NRS] 445.401 through 445.601 which implement the Clean Air Act. Disturbance of the ground surface of up to five acres is covered under a site-wide air quality permit. Dust-producing equipment, such as screens and conveyors, have individual permits. Other activities that degrade air quality would need to be evaluated for permits.*

Nevada Department of Transportation
(NDOT)

Standard Specifications For Road and
Bridge Construction

Note *The local State highway specifications are the usual standards for grading, drainage, and paving, and many times contain specifications for water and sewer installations for work within the right-of-way. The Nevada Department of Transportation (NDOT) Standard Specifications For Road and Bridge Construction is a recommended standard.*

Nevada Revised Statutes (NRS)

Water Pollution Control

445A.131 - 445A.354

Note

Nevada Revised Statutes (NRS)

Air Pollution

445B.401 - 445B.601

Note *Nevada Administrative Code [NAC] 445B.001 through 445B.395, Nevada Revised Statute [NRS] 445.401 through 445.601 which implement the Clean Air Act. Disturbance of the ground surface of up to five acres is covered under a site-wide air quality permit. Dust-producing equipment, such as screens and conveyors, have individual permits. Other activities that degrade air quality would need to be evaluated for permits.*

2. 8 **Construction**

Latest Revision: 8/22/2002

42 USC 4321

National Environmental Policy Act

Note *The National Environmental Policy Act (NEPA), is the standard which mitigates the environmental impacts of proposed construction at the NTS. Project plans are reviewed by environmental specialists outside of construction and a determination is made as to what level of NEPA documentation will be completed; Categorical Exclusion (CX), Environmental Assessment (EA), or Environmental Impact Statement, (EIS). Preactivity field surveys are done by trained archeologists, biologists, hydrologists and others to identify potential impacts of construction. The completed NEPA documentation is approved by the DOE/NV Manager. Surveyed areas are marked and construction is not allowed to proceed outside of previously cleared areas.*

Section 4 - Measurement Parameters:

The most practical and meaningful measurement parameter that can be used is the unit cost of the completed construction (cost per ton, lineal foot, square foot, etc.).

Section 5 - Implementation Considerations:

Site Work

Portions of all the above standards are incorporated into the existing DOE Nevada Test Site Standard Construction Specifications, (NTS Specs). However many special use requirements have been expanded in the NTS Specs to include all Nevada Test Site construction, for example: washed sand bedding for copper service lines has been expanded to include all waterlines; shaped bedding required for large diameter drainage pipe has been expanded to include all drainage pipe, and the bedding materials requirements exceed industry standards; paving aggregates must be 90% crushed materials (this is normally specified only for extreme service or thin overlays). Elimination of the special requirements prevalent in the NTS Specs, where standard requirements would suffice, could significantly reduce the cost of some construction projects.

Structural

Most building construction on the NTS is now built to the UBC; however, at times, the NTS Specs require higher construction grades than UBC requires, closer tolerances, and more intense inspection and testing requirements.

NTS structures are now rated at the same occupancy class for fire protection, and it may be more cost-effective to rate individual structures on the projected occupancy, or have mixed classes within individual structures, especially since the use has changed for many NTS

2.8 Construction

Latest Revision: 8/22/2002

buildings.

Mechanical

Most mechanical installations on the NTS are built to the UPC or UMC as applicable, however, at times higher grades of materials may be specified than the code requires, closer tolerances are required, and with more intense inspection and testing.

The Nevada Test Site Standard Construction Specifications section on refrigerants is obsolete and inconsistent with US DOE EH-23, "Recommended Approaches to Management of Refrigerants at Department of Energy Facilities."

Electrical

All electrical construction on the NTS is now built to the NEC. However, at times higher construction costs and project delays have been experienced when the NTS Specs have not kept up with the state of the art or have specified extra or over-designed parts or systems.

Many "temporary" power feed systems put in place at the NTS for single use test purposes or R&D projects were never taken out of service. This has led to code violation problems and expensive corrective action programs in the past. It is suggested that temporary construction power systems should not be used to feed power to facilities after the end of the test or R&D project.

Section 6 - Work Environment:

Work environments are typical of equivalent sectors of the general construction industry. However, construction at the NTS can be unique at times due to the extremes of the desert environment, the remoteness of some sites and the possible presence of radiation fields.

Section 7 - Uncertainties or Issues:

The Nevada Test Site Standard Construction Specifications should be eliminated in favor of the normal industrial standards which they reference. Design Engineering should specify job specific standards, when required, which are over and above the national norms for general construction. Plans and specifications should call out special standards whenever they are completely justified as critical to the integrity of special designs.

Section 8 - Training:

No training is required to adopt the aforementioned standards as they are presently in use in the general construction industry. Qualified craftsmen will be familiar with these recommended standards.

2. 8 *Construction*

Latest Revision: 8/22/2002

Section 9 - Vulnerabilities:

N/A

2.9 *Cement and Concrete Products*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Work under this WBS entails the supply of concrete, grout and other cement-related materials for NTS activities. Cement-related construction materials are supplied from three (3) NTS batching facilities that are similar to commercial batching facilities. The scope of work for this WBS consists of the following activities:

- Receipt and storage of raw materials
- Blending and mixing of cement and other materials (e.g., aggregate, water)
- Loading of cement-related products into trucks for transport
- Transport of products to job site

Supply of materials in support of construction includes the various concrete and grout mixtures that are designed to meet client/customer specifications. The mixture of cement, concrete and grout products are designed to achieve many different client needs. This can include mixtures that structurally support, insulate, contain, or protect structures that are located at NTS.

For cement and grout materials, the supplied products can be "dry product" or mixed as a wet product and delivered to the various construction sites. Concrete products are only delivered as a "wet product."

The cementing facilities supply grouting and stemming materials in support of ERWM drilling operations. The "dry product grout" is supplied to the drill site where it is site mixed for down hole grouting.

These facilities also provide construction support for other DOE site contractors and subcontractors in the form of :

- Blending cementing products
- Mixing and supply of concrete products
- Bagging and supply of blended cement products

Standards applicable to transportation of concrete and cement products will conform to

2.9 *Cement and Concrete Products*

Latest Revision: 9/30/1996

standards established in the Transportation WBS element.

Section 2 - Hazards and Management Issues:

HAZARDS

Worker protection: Cement and cement-related products require workers to protect the skin from prolonged contact. In areas where cement dust is present, ventilation, a NIOSH approved respirator, and tight fitting goggles are recommended.

Operation of the batch plants and related facilities and transportation of the cement-related products involves number of potential hazards common to construction-type work involving machinery, vehicular safety, noise, and other hazards.

Environmental: fugitive dust emissions from the batch plant are a potential environmental hazard and are regulated by the NDEP.

MANAGEMENT ISSUES/RISKS

A primary management concern is to ensure the quality of the products as needed to support NTS site construction, environmental and scientific activities.

Section 3 – Standards:

The necessary and sufficient set of standards for production of cement-related products are performance-based standards that are established on a project-specific (or even batch-specific) basis. The actual standards for production of concrete and other cement-related products are variable and selected by Design Engineering and customers. The project establishes performance and/or design standards for a needed product and identifies these requirements in a technical specification provided to the batch plant. The plant then designs the mixtures to meet the performance goals or standards in the specifications. This practice is consistent with the approach used in commercial industry.

Testing is commonly used to confirm that cement or concrete products attain the desired performance criteria. The standard established by the client is tested against the design parameters identified by his specifications. An example of this is a measurement of the compressive strength (measured in pounds per square inch [PSI]) that the products will achieve in a specified time (e.g., 7 days).

The majority of the test methods used to assure that NTS cement/concrete products meet job-specific requirements are ASTM test methods commonly used in commercial practice (e.g., ASTM C-150 for cement products, ASTM C-94 for concrete products). The specific test methods for a given project are typically identified by Design Engineering and

2.9 Cement and Concrete Products

Latest Revision: 9/30/1996

customers.

Standard

Title

American Society for Testing and
Materials (ASTM) Tests Contained in
Volume 04.01

Cement; Lime; Gypsum

***Note** The majority of the test methods used to assure that NTS cement/concrete products meet job-specific requirements are ASTM test methods commonly used in commercial practice (e.g., ASTM C-150 for cement products). The specific test methods for a given project are typically identified by the customer. The ASTM method will be used unless the client specifies a different method.*

American Society for Testing and
Materials (ASTM) Tests Contained in
Volume 04.02

Concrete and Aggregates

***Note** The majority of the test methods used to assure that NTS cement/concrete products meet job-specific requirements are ASTM test methods commonly used in commercial practice (e.g., ASTM C-94 for concrete products). The specific test methods for a given project are typically identified by the customer. The ASTM method will be used unless the client specifies a different method.*

Nevada Administrative Code (NAC)
445B.293

Air Quality – Operating Permits

***Note** Air emissions from the facilities are controlled via a permit from NDEP (Permit No. AP9711-0549). This permit is issued in accordance with State regulations, specifically NAC 4458.293, Operating Permits. The permit identifies emission units and mitigation measures necessary to control emissions (e.g., bag-houses, coverings, water sprays).*

Section 4 - Measurement Parameters:

In the cement and concrete industry, items typically monitored as performance measures are broken down as follows:

- a) Cost of raw materials vs. cement product cost/quality for resale.
- b) Operation costs calculated against the volume of product produced.
- c) Customer satisfaction measured by repeat business
- d) Industry quality standards for production of cement related products

2.9 *Cement and Concrete Products*

Latest Revision: 9/30/1996

At NTS, much of the work involves the blending of speciality cements for grouts that are not used in the general construction industry. Due to the large amount of science-based work that is supported, measurement parameters for the cement and concrete operations cannot be changed to industry standards without full consent of the customers and without additional support to ensure that the performance or other parameters will not be affected by any change in the final products.

Due to the unique needs of the cementing facility clients, the product quality as measured against the client's design specifications is the only recognized measurement parameter in use at the NTS cementing facilities.

Section 5 - Implementation Considerations:

Adopting an NTS operation standard for the cement related facilities based on a value-oriented industry performance standards is difficult at best. The industry is driven towards volume production goals that are beyond current NTS use needs. Industry volume goals cannot be used at NTS.

Air emissions from the facilities are controlled via a permit from NDEP (Permit No. AP9711-0549). This permit is issued in accordance with State regulations, specifically NAC 4458.293, Operating Permits. The permit identifies emission units and mitigation measures necessary to control emissions (e.g., baghouses, coverings, water sprays).

As a minimum, the produced products are measured for quality using the customer's product design parameters. These design parameters are recorded and as the products are produced, they are tested and gauged against these parameters. The value to customers is how well the products can perform when compared to the design parameters.

The cementing facilities have been providing support services for a wide range of user groups. The facility has been modified/expanded several times through a gradual evolution into its existing configuration. At the present time, the capabilities of this facility are greatly underutilized. Operating a large facility with such a small sales volume drives user costs up on a unit basis; however, there are no alternative facilities in the NTS area that can provide this service.

The concrete delivery fleet is old and in need of upgrading. The concrete volume currently required to support ongoing projects is low. The justification to upgrade the fleet is beyond what the industry would consider is normal.

Section 6 - Work Environment:

2.9 *Cement and Concrete Products*

Latest Revision: 9/30/1996

No special conditions were identified

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

2.10 Occurrence Reporting

Latest Revision: 8/14/2002

Section 1 - Work Activity:

This work activity addresses the documentation that arises from the determination, categorization, investigation, and corrective action due to events which have potential safety, environmental, health, or operational significance. These events, called reportable occurrences, require DOE/NV notification to DOE Headquarters. The reports are to be timely, contain appropriate information describing the occurrence, the significance of the event, the causal factors involved, and corrective actions taken. The primary use of occurrence reporting is for management information while the end use is to develop lessons learned. The information gathered is input into a DOE-wide computer database called the Occurrence Reporting Processing System (ORPS).

Section 2 - Hazards and Management Issues:

Occurrence reporting is essentially an administrative / management function with the exception of field investigation. There are no unique hazards associated with the activity. A process of identifying and correcting unusual or abnormal environmental, safety, health or operational events is needed so that management is able to institute the proper mechanisms for ensuring that corrective or preventive measures are taken. These events have the potential for bad publicity or poor public relations. Therefore, some type of management reporting system is regarded as critical for the success of DOE and contractors.

Section 3 – Standards:

There are a multitude of federal regulations which specify reporting, notification, or record keeping. Some Title 10 regulations even mention occurrence reporting, but in different and more specific contexts than that defined by this work activity. Various federal agencies require differing information, report times, and report methods for a variety of event categories. The total spectrum of federal reporting is pervasive. Examples include environment, safety, health, and transportation reporting among others.

However, these reporting requirements do not address the express DOE management desire for occurrence reporting, as defined in this work activity. That necessity is only promulgated in DOE Order 232.1 "Occurrence Reporting and Processing of Information" and the accompanying contractor requirement document, Attachment 1 "Contractor Requirements Document", dated 9-25-95.

Standard

DOE M 232.1-1A, CRD

Title

Occurrence Reporting and Processing of Operations Information

2.10 Occurrence Reporting

Latest Revision: 8/14/2002

Note

DOE O 151.1, CRD	Comprehensive Emergency Management
------------------	------------------------------------

Note DOE O 151.1 replaces the 5500 series of Orders for categorization of events. DOE O 151.1 is applicable to this work activity with regard to classification of events.

DOE O 232.1A, CRD	Occurrence Reporting and Processing of Operations Information
-------------------	---

Note There are no national or state industrial standards which fulfill the requirements of DOE headquarters policy. Therefore, DOE Order 232.1 is regarded as the necessary and sufficient standard for this work activity.

NV N 232.XA, CRD	Event Notifications
------------------	---------------------

Note Added by BCR2002-001.

NV O 232.1A	Occurrence Reporting and Processing of Operations Information
-------------	---

Note Added by Change Request 99-002, 9/23/99

Section 4 - Measurement Parameters:

- Timeliness of reports submitted.
- Number of reports initiated vs. number of reports finalized.

Section 5 - Implementation Considerations:

DOE/NV and its contractors should continue DOE O 232.1, "Occurrence Reporting and Processing Operations Information" as the standard for occurrence reporting. However, it is recognized that additional reporting requirements are imposed by DOE O 232.1 which would not be required by current CFRs.

The DOE O 232.1 contractor requirements document requires the development of implementing procedures using the guidance criteria of DOE Manual 232.1. It is within these local procedures where cost savings may be realized. Some potential areas for analysis are in reporting criteria for "off-normal" versus "unusual" occurrences, the level of effort for investigating these categories, and the need for the Nevada Occurrence Reporting System Operation Center (NORSOC).

DOE headquarters has an active process improvement team for DOE O 232.1. Contractor management should place knowledgeable individuals on that team as one method to improve occurrence reporting.

2.10 Occurrence Reporting

Latest Revision: 8/14/2002

Section 6 - Work Environment:

No unique work environments are associated with occurrence reporting. Field investigators may encounter any work environments identified under other work activities.

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Training requirements are identified in DOE O 232.1.

Section 9 - Vulnerabilities:

N/A

2.12 *Hazard Assessment*

Latest Revision: 8/12/2002

Section 1 - Work Activity:

The purpose of hazard assessment is to systematically review the structures, systems, components and operations of facilities and activities to ensure that these items are operated in a fashion that minimize the risks to the workers, general public and environment. To accomplish this assessment in a cost effective manner, the implementation should be in a graded manner considering the likelihood of an event in combination with the consequences of an event. In the case of nuclear facilities, the radiological consequences of operations and design basis events must be considered as well. Hazard assessments typically focus on the safety aspects of processes or unique activities. These assessments complement the routine activities conducted under the auspices of the Industrial Hygiene and Occupational Safety and Health programs, such as protection against trips, slips and falls, entry into confined spaces, use of respirators, control of exposure to industrial chemicals, control of exposure to noise or thermal stress. Representative work found in this activity includes assessment of chemical hazards routinely encountered in the workplace; assessment of physical hazards in the workplace (e.g. noise, and determination of method(s) of mitigation; and assessment of hazards associated with construction activities prior to start of construction and documentation of hazards as part of the construction Health and Safety Plan when requested. To be most effective, a hazard assessment should be initiated during the conceptual design phase for a facility or process or activity, and updated at appropriate points as additional information becomes available. The early initiation of the assessment permits the design to address identified hazards and engineer features to mitigate the hazards. As the design and implementation progresses it will become increasingly difficult and expensive to design mitigating features. The hazard assessment should rank hazards by risk to assist management in allocating its resources in the most effective manner possible.

Hazard assessments may be either qualitative or quantitative. Typical techniques for performing these assessments include:

- Safety review
- Checklist analysis
- Relative ranking
- Preliminary hazards analysis
- What-if analysis
- What-if/checklist analysis
- Hazard and operability analysis
- Failure modes and effects analysis
- Fault tree analysis
- Event tree analysis

2.12 *Hazard Assessment*

Latest Revision: 8/12/2002

- Cause-consequence analysis
- Human reliability analysis

It is up to the judgment of the assessment participant(s) to choose the technique most appropriate for the complexity of the process, magnitude of consequences and availability of information. There is no single format for documenting the hazard assessment, although several of the assessment techniques have typical tools. However, it is necessary that the documentation be sufficiently rigorous to demonstrate the adequacy of the assessment.

Aspects of hazard assessments include: for new, non-routine, or one-time-only jobs, assess hazards by performing a Job Safety Analysis (JSA); perform hazard assessment for input to a management plan for any process involving the use of highly hazardous chemicals; perform preliminary hazards analysis in conjunction with the conceptual design phase of engineering projects and identify those hazards amenable to mitigation by engineering features; (nonnuclear hazards/items would be incorporated based on their identification by the applicable hazard assessment process). (A preliminary hazard analysis, based primarily on design or operational considerations, may be utilized as the basis for a preliminary radiological safety analysis document.)

The list of standards notwithstanding, NISCG concluded that the fundamental standard for this WBS is the conduct of a hazard assessment before beginning a new activity. This assessment should be cost effectively matched to the complexity, uncertainty, and overall risk of the activity. There are several guidelines that describe effective approaches to assure that real and contingent hazards associated with a process or a facility are addressed by an assessment of this type. The following are examples:

- AIChE Guidelines for Hazard Evaluation Procedures.
- NASA Safety Policy and Requirements Document.
- MIL-STD-882, System Safety Program Requirements.

Section 2 - Hazards and Management Issues:

Hazards to personnel performing hazard assessments:

- The hazards to which personnel performing hazard assessments are exposed are typical of those encountered in the office and at construction or industrial sites, and include the potential for exposure to hazardous chemicals and radioactivity/radiation.

Management issues:

- A management issue is involved when hazard assessment fails to identify a hazard that could result in a potentially hazardous situation that, if uncorrected, could lead to injury, civil and/or criminal liability, legal action and possible loss of external credibility for DOE

2.12 Hazard Assessment

Latest Revision: 8/12/2002

and its contractors.

- Failure to perform the preliminary hazard assessment would serve to complicate and possibly result in delays in developing the material required to obtain authorization (i.e., for design, construction and/or start of operation) of the proposed facility/activity, or of any subsequent revisions deemed necessary.

Potential hazards identification and mitigation:

- Recognizing the hazards (both real and potential) associated with a facility/operation, and identifying mitigative features, when appropriate, will help provide management with assurance that its employees, the public and the environment will be protected. This includes identifying the presence of: hazardous chemicals and radioactivity, and the precautions requisite for their safe handling, use and storage; and physical hazards necessitating the need for worker protection, including from stored energy. In addition, the hazard analysis for engineering design projects may identify recommended design changes, mitigation options (engineered versus administrative controls) or changes to the proposed operational processes

Section 3 – Standards:

The following are the N&S standards for Hazard Assessment:

Standard	Title
-----------------	--------------

29 CFR 1910.119 (e)	Process Safety Management of Highly Hazardous Chemicals
---------------------	---

Note Retained by BCR 2002-012.

40 CFR 68	Chemical Accident Prevention Provisions
-----------	---

Note Retained by BCR 2002-012. Required for hazard analysis of highly hazardous chemicals.

Section 4 - Measurement Parameters:

The measurement parameters associated with hazard assessments for the workplace are those which relate to the thoroughness and effectiveness of the assessment, e.g.:

- Occurrences related to unidentified hazards are indicative of a weakness in the process, and
- Avoidance of occurrences related to identified hazards.

With respect to hazard assessments related to design engineering projects and as baseline information for preparation of the document describing customer satisfaction is measured by DOE approval of the document. The number of iterations due to ES&H issues in order

2.12 *Hazard Assessment*

Latest Revision: 8/12/2002

to "get it right," is representative of the effectiveness of the process. The greater the number of iterations required for final approval, the less effective the process, since multiple iterations could impact project cost and schedule.

Section 5 - Implementation Considerations:

Use of the identified set of standards for assessment of non-nuclear related hazards in the workplace will require no significant change, so implementation could be immediate. However, the use of JSAs may also be advisable for jobs showing increased accident trending. Significant changes will be required for hazard assessments related to design engineering efforts in order to reflect the new standards. Substantive savings of time and money can be achieved by optimizing the preparation of hazard assessments for design engineering.

Early preparation of a preliminary hazard analysis can assist design engineers in identifying relevant ES&H issues and in avoiding related design changes.

There has been a recent trend, particularly for ERWM projects, to recognize the advantages to funding hazard assessments very early in the process. (DOE makes this decision.) This trend needs to continue and be applied to all significant projects.

It should be noted that the hazard assessment should be maintained current with the existing facility operations and as-built designs.

All standards identified for this process should flow down to subcontractors.

No exemptions from mandatory laws or regulations will be required.

Section 6 - Work Environment:

Work is normally performed in an office although input data may require job-site visits (laboratories, outdoors, etc.).

Section 7 - Uncertainties or Issues:

Section 8 - Training:

Section 9 - Vulnerabilities:

2.12 *Hazard Assessment*

Latest Revision: 8/12/2002

2.13 *Military Munitions*

Latest Revision: 8/22/2002

Section 1 - Work Activity:

This work activity applies the to on-site transportation, storage, use, and disposal of military munitions associated with activities conducted under the purview of the Department of Energy Nevada Operations (DEO/NV). This includes research and development (R&D) activities using explosives, which are conducted primarily at the Nevada Test Site (NTS). As defined in 40 CFR, Section 260.10, the term military munitions includes confined gaseous, liquid, and solid propellants; explosives; pyrotechnics; chemical and riot control agents; smokes; incendiaries; bulk explosives and chemical warfare agents; chemical munitions; rockets; guided and ballistic missiles; bombs; warheads; mortar rounds; artillery ammunition; small arms ammunition; grenades; mines; torpedoes; depth charges; cluster munitions and dispensers; demolition charges; devices and components; and DOE explosives with no Special Nuclear Material.

Military Munitions do not include wholly inert items improvised explosive devices, nuclear devices and nuclear components. Military munitions transportation under this work activity is defined as transportation of military munitions within the boundaries of a site of facility controlled by DOE/NV.

This work activity does not include the use; transportation, and storage of explosives when used in construction and mining applications or routine disposal of commercial explosives waste, when conducted on a permitted hazardous waste treatment facility. Refer to WBS, 2.1.8, Waste Explosives Disposal. Further, this work activity does not include transportation, storage, and use of military munitions by protective forces under the purview Nevada Operations. Protective force use of munitions is addressed in WBS, 4.6, Firearms Safety.

Section 2 - Hazards and Management Issues:

Blast overpressure, fragmentation, thermal and noise effects from intentional or accidental detonation or deflagration of military munitions, which may cause harm to the public, employees, environment, and the DOE/NV mission in the conduct of this work activity. Certification, inspection, and maintenance of facilities, equipment, and vehicles used to support this work activity. Munitions accountability and Control refer to WSS 2.10, Occurrence reporting, and WBS 4.2.1, Occupational Safety and Health Programs, for the adopted standards associated with accident and incident reporting and investigation applicable to this work activity.

Section 3 – Standards:

The Necessary and Sufficient set of standards applicable to this work activity is as follows:

2.13 Military Munitions

Latest Revision: 8/22/2002

Standard	Title
40 CFR, Part 266, Subpart M <i>Note Added by BCR 1999-013.</i>	Military Munitions
DOE M 440.1-1 - Chapter 2, Section 13 <i>Note Added by BCR 1999-013.</i>	DOE Explosives Safety Manual (Operational Safety Testing)
Nevada Test Site Standard Operating Procedure 5412, Paragraph 5.b <i>Note Added by BCR 1999-013.</i>	Explosive Safety (Inspection)
AFMAN 91-201 - Chapter 2, Sections A- E, and G <i>Note Added by BCR 1999-013.</i>	Explosives Safety Standards (Explosive Safety Requirements)
<p><i>The transportation section of this WSS addresses on-site transportation of military munitions in conjunction with the conduct of on-site projects and work activities and does not address off-site transportation and shipment and transportation of military munitions conducted in commerce. Refer to WBS 3.6, Transportation, for requirements governing shipment and transportation in commerce.</i></p> <p><i>A test-execution plan including approved operating procedures shall be developed for each project/test and shall include a project/test specific hazard assessment consistent with WBS 2.12, Hazard Assessment.</i></p> <p><i>The inclusion of specific standards in this WBS does not imply exclusion of other applicable WBS or prescribed standards that are mandated elsewhere.</i></p>	
DOD 5100.76-M - Chapter 2.A <i>Note Added by BCR 1999-013.</i>	Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (General)
DOD 5100.76-M - Chapter 5 <i>Note Added by BCR 1999-013.</i>	Physical Security of Sensitive Conventional Arms, Ammunitions, and Explosives (Protection of Non-Nuclear Missiles, Rockets, Ammunition, and Explosives)

2.13 ***Military Munitions***

Latest Revision: 8/22/2002

DOD 6055.9-STD, Chapters 1-9 ,12 and
Appendix A

DoD Ammunition and Explosives Safety
Standards

Note Added by BCR 1999-013.

TM-60A-1-1-31

The Munitions-Specific Technical
Publication Supplements (as applicable)

Note Note revised by BCR 2002-022.

TM-60A-1-1-31

General Information on EOD Disposal
Procedures

Note Added by BCR 1999-013.

The Munitions-Specific Technical Publication Supplements (as applicable)

Disposal of military munitions is conducted under either routine or emergency conditions. Emergency disposal is conducted under conditions when the munition is in an unsafe or unstable condition as determined by competent authority. In such cases disposal may be effected in-place at the project site or location or the munitions may be transported to a permitted hazards waste treatment facility. All routine disposal of military munitions will be conducted at the hazardous waste treatment facility and such disposal will meet the requirements of the permitted facility and as defined herein. Refer to WBS 2.1.8, Waste Disposal, that provides the governing requirements for explosives disposal operations conducted on the hazardous waste treatment facility.

Section 4 - Measurement Parameters:

Reportable incidents of security violations involving munitions.

Loss of munitions.

Number of discrepancies in accountable munitions.

Number and duration of current waivers and exemptions.

Number of reportable incidents of safety violation and deficiencies involving munitions.

Number of negative public reports attributed to military munitions operations that may adversely affect the public's perception of DOE/NV's ability to conduct its primary mission.

Section 5 - Implementation Considerations:

2.13 *Military Munitions*

Latest Revision: 8/22/2002

An implementation plan shall be developed by DOE/NV. Contractor and users shall assess current compliance with stated standards, identify deficiencies and propose corrective actions to achieve compliance.

Explosives Safety Site Plans developed in accordance with DoD 6055.9-STD shall be reviewed and approved by the Manager DOE/NV.

Waivers and Exemptions to the standards defined in this WSS shall be approved by the Manager DOE/NV.

Acceptability of compensatory measures as validated by competent analysis may be considered for the compliance with security control requirements for military munitions stored at facilities under the purview of DOE/NV.

A safety review and authorization process shall be established and implemented for project/test which utilize military munitions.

Initiation of military munitions is conducted under either routine or emergency conditions. Emergency initiation is conducted under conditions when the munition is in an unsafe or unstable condition as determined by competent authority. In such cases initiation may be effected in-place at the project site or location or the munitions may be transported to a permitted hazardous waste treatment facility.

Section 6 - Work Environment:

This work activity is conducted at explosives sited facilities and areas located primarily at the Nevada Test Site.

Section 7 - Uncertainties or Issues:

None

Section 8 - Training:

Personnel who work with military munitions will be trained and qualified in the tasks to be performed. Personnel performing emergency disposal of military munitions will be qualified as munitions emergency response specialists as defined in 40 CFR Section 260.10.

Section 9 - Vulnerabilities:

Implementation may require development of DOE/NV supplemental directives to ensure

2.13 *Military Munitions*

Latest Revision: 8/22/2002

consistent interpretation and implementation by the DOE/NV contractors and user organizations.

2.14 Counter Terrorism Operations Support (CTOS) Explosive Operations and Safety

Latest Revision: 8/26/2002

Section 1 - Work Activity:

This work activity addresses handling and employing high and low order explosives (both military and commercial-off-the-shelf) in support of CTOS activities. Explosives related activities include:

- Assembling, handling, storing, transporting, processing, or testing of explosives, pyrotechnics and propellants, or assemblies containing these materials;
- Research, Development, Test, and Evaluation (RDT&E) of high explosives in support of the military, law enforcement, and intelligence communities;
- Training and demonstrations for the aforementioned plus state and local first responders;
- Classified and unclassified database development;
- Combat engineering applications, and
- Range clearing activities.

This work activity does not include explosives in support of:

- Tri-lab/stockpile stewardship activities.
- Protective forces activities; protective force use of munitions is addressed in WBS 4.6, Firearms Safety;
- Mining activities, addressed in WBS 2.3-Surface Mining and 2.4-Underground Operations, and
- Construction activities, addressed in WBS 2.8-Construction.

Execution of this work activity requires the interface with and application of other Work Smart Standards work activities, and the standards cited therein. Typical WSS work activities for which this interface is expected are listed below. Unless otherwise indicated, this Format 1 concurs with the stated Work Smart Standards.

1.3.1 – Procurement. In addition to the WSS activities cited, the NTS warehouse must be notified of a pending shipment of explosives in order for the vendor to receive payment.

2.1.4 – Solid Waste.

2.10 – Occurrence Reporting.

3.6b (BN) –Transportation.

4.2.1 – Occupational Safety and Health Program.

2.14 Counter Terrorism Operations Support (CTOS) Explosive Operations and Safety

Latest Revision: 8/26/2002

4.2.2 – Industrial Hygiene.

4.7 – Quality Program.

Section 2 - Hazards and Management Issues:

Environment, safety, and health hazards associated with work activities described in Section 1 include:

- Blast effects, to include overpressure, fragmentation, thermal effects, and noise effects
- Security of stored munitions
- Certification, inspection, and maintenance of facilities, equipment, and vehicles used to support this work activity

Management issues include:

- Training and certification of personnel conducting the work
- Operations conducted IAW applicable standards
- Participation in lessons learned
- Development of classified databases or other classified work, conducted IAW applicable IWFO procedures

Section 3 – Standards:

The standards cited below apply only to the specific portions identified. In the event of any subject-matter overlap, DOE M 440.1-1 will take precedence.

Standard	Title
DOE M 440.1-1, Pantex version	DOE Explosives Safety Manual
<i>Note Chapters 2 through 9 only. Added by BCR 2002-022.</i>	
United States Army Field Manual 5-250	Explosives and Demolitions
<i>Note Chapters 1 through 8 only (exclusive of Chapter 6, Section 111, Transportation and Storage Safety, addressed in DOE M 440.1-1). Added by BCR 2002-022.</i>	
United States Navy NAVSEA SW060-AA-010	Technical Manual Demolition Materials
<i>Note Chapters 1, 3 through 7, 9, and 10 only. Added by BCR 2002-022.</i>	

Section 4 - Measurement Parameters:

2.14 Counter Terrorism Operations Support (CTOS) Explosive Operations and Safety

Latest Revision: 8/26/2002

Parameters that can be measured for explosives operations include:

- Events or conditions involving explosives that result in a DOE or NNSA reportable occurrence
- Accurate inventory accountability
- Adequate physical protection of explosives

Additionally, work activities described in Section 1 that are conducted as Work for Others fall under the purview of DOE O 481.1B, Work for Others (Non-Department of Energy Funded Work). Satisfactory performance of the work activity is therefore defined as meeting the contracted scope of work, on schedule, within budget

Section 5 - Implementation Considerations:

1.3.1 – Procurement. In addition to the WSS activities cited, the NTS warehouse must be notified of a pending shipment of explosives in order for the vendor to receive payment.

3.6b (BN) – Transportation. The only issues ascertained by CTOS are a final across the board (for all parties concerned) decision on where public domain ends/starts and the contention that intra-site shipments are considered in commerce. Additionally an interchange yard (trans-load site) location needs to be identified when unload and reload of hazardous materials is required.

Section 6 - Work Environment:

The work activities addressed in Section 1 occur in a number of different environments, to include: DOE/NNSA and non-DOE/NNSA classroom facilities, NTS sites, and explosives storage facilities. Actual use of explosives can be conducted at customer facilities as well as the NTS.

Section 7 - Uncertainties or Issues:

N/A. However, as work scope and missions change relative to the work activity described in Section 1, this Format-1 will be reviewed and revised accordingly.

Section 8 - Training:

All personnel using or supervising the use of explosives related activities as defined in Section 1, will be trained and qualified in accordance with DOE M 440.1-1, DOE Explosives Safety Manual, Chapter V, Training.

2.14 *Counter Terrorism Operations Support (CTOS) Explosive Operations and Safety*

Latest Revision: 8/26/2002

Section 9 - Vulnerabilities:

Non-compliance with applicable standards, directives, or regulations could lead to severe safety infractions, fines, penalties, or shutdown of work activities. Section 2 specifically addresses those issues requiring consideration for the maximum possible reduction of program vulnerabilities.

2.X *Hazard Category 2 & 3 Non-Reactor Nuclear Facilities*

Latest Revision: 8/14/2002

Section 1 - Work Activity:

This work activity covers construction, operation, management, support, and decommissioning of the hazard category 2 and 3 non-reactor nuclear facilities.

Execution of this work activity requires the interface with and application of other Work Smart Standards work activities and the standards cited therein. Below are the typical WSS work activities for which interfacing is expected. Others will be incorporated as needed:

- 1.8-Administrative Systems and Controls
- 2.1-Occurrence Reporting
- 2.1.7-Radioactive Waste
- 2.7.1-Design Engineering
- 3.4-Facility Maintenance
- 3.6-Transportation
- 3.7-Industrial Security
- 4.1.2-Fire Protection: Fire Prevention Activities
- 4.2.1-Occupational Safety & Health Programs
- 4.2.2-Industrial Hygiene
- 4.4-Radiation Protection
- 4.5-Environmental Protection Program
- 4.6-Firearms Safety
- 4.8-Emergency Management Program and System
- 4.9-Environmental Monitoring Program

Section 2 - Hazards and Management Issues:

Environment, Safety, and Health hazards associated with management, support, operation, and decommissioning of non-reactor nuclear facilities described in Section 1 include:

- Nuclear/radiological (e.g., human exposure, environmental releases)
- Chemical (e.g., human exposure, environmental releases) · Standard industrial safety (e.g., slip, trip, fall, equipment operation, equipment handling, energy sources, heat stress)
- Environmental impact (e.g., degradation of the existing ecology)
- Nuclear criticality safety
- Transportation concerns (e.g., motor vehicle accidents)
- Fire hazards
- Natural phenomenon hazards

Management Issues include:

2.X Hazard Category 2 & 3 Non-Reactor Nuclear Facilities

Latest Revision: 8/14/2002

- Nuclear facility hazard categorization
- Establishing a Documented Safety Analysis consistent with Department of Energy nuclear safety basis regulations
- Operations of the non-reactor nuclear facility in accordance with the approved Safety Authorization Basis
- Regulatory required Quality Assurance Requirements (10 CFR 830, Subpart A)
- Establishment of design criteria
- Design, procurement, and construction
- Non standardized pressure systems design
- Integrity of critical structures, systems and components (SSCs)
- Procured items meeting design specifications
- Operation of the non-reactor nuclear facility in accordance with quality assurance requirements
- Price-Anderson Amendment Act concerns
- Assurances of readiness
- Obtaining field office operations authorization
- Participation in lessons learned

Section 3 – Standards:

The standards listed below apply to all facilities described in Section 1 of this format-1, unless a more limited application is specified in the note following a standard.

Standard	Title
10 CFR 830	Nuclear Safety Management
<i>Note Added by BCR 2002-012. N/A</i>	
DOE O 420.1 Chg 3, CRD	Facility Safety
<i>Note Added by BCR 2002-012. O 420.1, Contractor Requirements Document, Section 4.2 - Fire Protection, Subsection 4.2.1 - General Program Requirements is addressed through application of WBS 4.1.2 - Fire Protection: Fire Prevention Activities.</i>	
DOE O 425.1B, CRD	Startup and Restart of Nuclear Facilities
<i>Note Added by BCR 2002-012. N/A</i>	
DOE O 433.1, CRD	Maintenance Management Program for DOE Nuclear Facilities
<i>Note Added by BCR 2002-012. N/A</i>	
DOE O 440.1A, CRD	Worker Protection Management for DOE

2.X Hazard Category 2 & 3 Non-Reactor Nuclear Facilities

Latest Revision: 8/14/2002

Federal and Contractor Employees

Note Added by BCR 2002-012. Only Sections 20, Pressure Safety & 22, Suspect and Counterfeit Items Controls.

DOE O 5480.19 Chg 2

Conduct of Operations Requirements for DOE Facilities

Note Added by BCR 2002-012. N/A

DOE O 5480.20A Chg 1

Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities

Note Added by BCR 2002-012. N/A

NV M 450.XA, Chg 1

Authorizaiton and Activity Agreements for Facilities and Operations

Note Added by BCR 2002-012. N/A

Section 4 - Measurement Parameters:

None specific to this work activity.

Section 5 - Implementation Considerations:

Implementation of these standards requires that a number of infrastructure changes be made to support operation, maintenance and training for facilities addressed in Section 1. Several of the standards require that programs, e.g. training, conduct of operations, and maintenance, be developed for the covered facilities and be approved by the Department of Energy Field Office Manager. Each facility addressed in Section 1 must have a Documented Safety Analysis meeting the requirements of 10 CFR 830 Subpart B, Safety Basis Requirements. Readiness activities (Operational Readiness Review or Readiness Assessment) are required for the start or restart of facility addressed in Section 1. Maintenance standards require that a Systems Engineer Program be established to support the maintenance and configuration control of the SSCs for the facilities addressed in Section 1.

Implementation of the standards noted in Section 2 will impact current budget and schedule due to a significant change in requirements. Recognizing that full compliance with the standards cited in Section 3 will take in excess of one year, compensatory measures will be needed to minimize risk during implementation.

2.X Hazard Category 2 & 3 Non-Reactor Nuclear Facilities

Latest Revision: 8/14/2002

Section 6 - Work Environment:

Management, support, operation, and decommissioning of facilities addressed in Section 1 occur in a number of varied work environments. These include process facilities with radiological areas, SSCs, and equipment; facilities undergoing decontamination and demolition; shallow land burial operations; as well as industrial storage locations which use heavy equipment.

Section 7 - Uncertainties or Issues:

The work activity description and standards specified herein address current and foreseeable facilities (as defined in Section 1). As NNSA/NV work scope and missions change relative to the work activity described in Section 1, this format-1 needs to be reviewed and revised accordingly.

It is recognized that significant effort will be required to implement the standards noted in Section 2. The exact impact on budget, schedule and funding is uncertain but is believed to be significant.

Section 8 - Training:

There are no known unique or special indoctrination, training, and/or certification requirements beyond those identified in the standards for this WBS.

Training Implementation Matrices are required under DOE O 5480.20A, Personnel Selection, Qualification, Training and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities.

Section 9 - Vulnerabilities:

Non-compliances with applicable standards or directives could lead to fines, penalties, and shutdown of work activities. Section 2 addresses issues requiring consideration for reducing program vulnerabilities. Loss of trust and confidence in the technical ability of NNSA/NV to conduct non-reactor nuclear activities under safety work standards could impact the ability to attract new projects.

3.1 *Housing*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Housing is an NTS-only activity. Housing facilities are provided on the NTS to enable workers who must complete work activities on schedule to remain on the site and be readily available. The activity is private, non-public access housing similar to short-term accommodations provided by small city motels. This work activity begins with the receipt of a request for quarters at the site. It can be in response to a reservation request or the physical presence of an individual at the Housing Office in Mercury, NV. Current suspension of the test program has reduced the demand below the available supply of rooms, so advance reservations and the attendant potential to resolve conflicts is not as significant as it once may have been. Facilities exist both in Mercury and in Area 12, but only the Mercury facilities are currently in use.

The actual housing service consists of three components: office functions, housekeeping, and guest safety. Each is described below.

Office Functions: The activity includes reservations, guest check-in and check-out, billing, and the subordinate accounting functions, e.g., accounts receivable. The basic reservation principle is first come, first served. Check-in involves positive identification of the guest and assurances of the correct billing information. Check-out involves assuring that all applicable charges have been accrued to the guest and either direct collection or provisions for billing to the parent organization have been made.

Housekeeping: The activity includes the actual work involved in linen service and cleaning. Cleaning includes space cleaning and sanitation. Sanitation involves trash removal and fixture sterilization.

Guest Safety: This activity includes the efforts to protect guests from slips, trips and falls and to assure their personal safety and the security of their personal property. This activity relies on employee and management awareness to identify potentially faulty conditions and administrative controls over access.

This work description assumes that the issues related to the maintenance of the structure and services (e.g., potable water, electricity, sewage, heating and cooling) are described and assessed as part of WBS 3.4, Facility Maintenance, and WBS 3.8, Utilities.

Section 2 - Hazards and Management Issues:

Office Functions: The hazards that derive from this activity are the same as those associated with any office type environment.

3.1 *Housing*

Latest Revision: 9/30/1996

Housekeeping and Guest Safety: Hazards associated with the housing work activity, described in the sub-tasks above, potentially can affect the worker as well as the resident guest. The most significant hazards, communicable diseases and blood borne pathogens, evolve from inadequate cleaning and, for the workers, failure to use correct protective equipment during cleaning. These hazards derive primarily from the sanitation portion of the cleaning sub-activity, specifically the removal of trash and the sterilization of room fixtures. The potential injury from lifting heavy loads is attendant with the linen. Slips, trips, and falls because of loose carpets, wet floors, or faulty handrails also exist. Staff as well as guests are exposed to this type of hazard.

Management issues involve: 1) availability of clean, comfortable rooms sufficient to meet demand, 2) an adequate supply of clean linen, 3) prompt payment, room access control and key control, and 4) adequate management oversight to identify deteriorating conditions, potential hazards, or unsafe work practices.

Section 3 – Standards:

In the course of information gathering for this work activity review, a Nye county motel owner was interviewed relative to standards utilized. This individual identified a de facto industry standard adopted by many commercial establishments. That "standard" is the rating process utilized by the American Automobile Association for grading hotels and motels. These involve safety considerations, but relate mainly to comfort and convenience.

The standards for this work activity are the same as the commercial industry standards used by motels in the state of Nevada. The Necessary and Sufficient set of standards for Housing are:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogens
<i>Note 29 CFR 1910.132 and 1910.1030 for mitigation of Blood borne pathogens (as implemented through WBS 4.2.2 Industrial Hygiene, and WBS 4.3, Medical Programs).</i>	
29 CFR 1910.132	Personal Protective Equipment
<i>Note 29 CFR 1910.132 and 1910.1030 for mitigation of Blood borne pathogens (as implemented through WBS 4.2.2 Industrial Hygiene, and WBS 4.3, Medical Programs).</i>	
40 CFR 261.4, Exemptions, b.1	Solid Wastes Which Are Not Hazardous Waste

3.1 *Housing*

Latest Revision: 9/30/1996

***Note** Identifies "Household Waste" as not hazardous waste. Household waste is defined as "... any material (including garbage, trash and sanitary wastes in septic tanks) derived from households (including ... hotels and motels,...)." This allows for handling of waste generated from housing as non-hazardous waste.*

Nevada Administrative Code (NAC) 447 Public Accommodations

***Note** General requirements on cleanliness and laundry that are applicable to commercial businesses.*

Section 4 - Measurement Parameters:

- Number of occupied rooms per custodian.
- Occupancy rate.
- Income versus total housing costs.
- Customer safety.
- Customer satisfaction surveys.

Section 5 - Implementation Considerations:

Adequate cleaning procedures that prevent exposure of guests to these hazards are already implemented. The exposure to slips, trips and falls is mitigated by a thorough maintenance program, prevention awareness by the workers, signs prominently displayed, and management's constant oversight to include physical inspections. The current work practices address the identified standards.

The housing activity is one of several activities that has incorporated the worker Performance Based Safety Program. In the Performance Based Safety Program, workers are trained as observers. They observe peers in conduct of the work in an effort to identify unsafe practices and then work as a group to revise them. Observers rotate back as workers and another member of the group becomes the observer to enhance safety awareness across the group.

A comprehensive back injury prevention and office safety program should be developed and implemented.

Section 6 - Work Environment:

3.1 *Housing*

Latest Revision: 9/30/1996

N/A

Section 7 - Uncertainties or Issues:

The standards may need to be reviewed if housing facilities are reopened in the forward area on a temporary or permanent basis.

The trailer park has been closed. If the decision is made to reopen the trailer park, any additional standards associated with that activity will have to be identified.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

3. 2 ***Food Services***

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Food service is necessary to support the work at the Nevada operations. The program is expected to provide approximately three hundred thousand meals per annum. In addition catering is to be provided for site tours, other official visits, box lunches, and the Yucca Mountain Project as required. Food service activities for the NTS are :

- Menu planning, food preparation; and serving.
- Wrapping and loading the food into food vending machines.
- Transportation suitable and acceptable storage of food and other supplies.
- Cleaning of all food service facilities, including vending machines.

Food service facilities at NTS are licensed and inspected by the State of Nevada Department of Environmental Health.

Section 2 - Hazards and Management Issues:

Hazards to food services personnel are not unique. Examples are hot stoves, steam, handling cutlery, machinery such as slicers and mixers, lifting, pulling and pushing. Food-borne illness; liquid or food spills; blocked fire exits, wet floors, etc., are some of the hazards to customers and are no different than those found in commercial practice.

Section 3 – Standards:

The necessary and sufficient standards for Food Services are:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogens
<i>Note</i>	
29 CFR 1910.132	Personal Protective Equipment
<i>Note</i> Applicable provisions of 1910.132 for mitigation of communicable disease.	
Nevada Administrative Code (NAC) 446	Food and Drink Establishments
<i>Note</i> (The health card requirements are applicable to Clark County only.) This standard is utilized because all of the food service facilities are licensed by the State of Nevada. These licenses are issued in accordance with the requirements of the above publication. The Nevada Code complies with the 1993 U.S. Public Health Service Food Code. The subcontracts to vendors also	

3. 2 *Food Services*

Latest Revision: 9/30/1996

include a reference to the applicable state regulations for food establishments.

Section 4 - Measurement Parameters:

- Number of meals served per Food Service FTE.
- Number of Performance Based Safety Observations compared to the injuries/illnesses.
- Customer satisfaction surveys.
- Overall contract performance.

Section 5 - Implementation Considerations:

Current practices already implements the above standards resulting in minimal impact.

The principal hazard in food services is the potential outbreak of food borne illness. Food service safety is maintained through personal cleanliness and proper food handling. The adoption of the Hazard Analysis of Critical Control Point (HACCP) process to assure protection is an integral part of the food services program presently in place. The staff is trained and certified in the fundamentals of the HACCP.

Food services are inspected routinely by the Contractor's Sanitarian as well as the management and the State of Nevada Department of Environmental Health which performs an annual inspection of the NTS food services facilities as required by the license issued by the State. All food service facilities at the NTS are licensed by the State of Nevada in accordance with the Nevada Administrative Code.

Public safety is a concern and as such the facility is to be maintained in accordance with occupational safety and health standards. The daily inspection of foods, food preparation and storage areas, monitoring of refrigeration temperature check sheets, menu evaluation, monitoring of temperature of prepared foods and the inspection of hot holding cabinets provide oversight of the work activities.

Food services for the remote locations, including North Las Vegas are provided by a subcontractor. The subcontractor is required to meet federal and state regulations for food service.

NTS Food Services is a member of the National Restaurant Association, Nevada Restaurant Association, and National Automated Merchandising Association. Memberships and

3.2 *Food Services*

Latest Revision: 9/30/1996

participation with industry associations, local and national, allows access to changes and input to industry practices.

Management will inspect the entire operation on an unscheduled, but regular basis.

A comprehensive back injury prevention program should be developed and implemented for this work activity.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

As downsizing occurred, some facilities were closed. Facilities may need to be reactivated to support other work for limited periods. Reopening of facilities must include inspections by ES&H professionals. State licenses may also have to be reviewed and updated.

The 1995 Inspector General audit recommended zero subsidy for food services. The provision of meals at the NTS is considered a support service function and is budgeted annually. As budgets decline, adjustments in the methods of service and the amounts charged for meals may be required.

Section 8 - Training:

Lead culinary employees are trained in the HACCP program requirements to ensure a high quality of food service.

Section 9 - Vulnerabilities:

N/A

3.3 *Aviation*

Latest Revision: 9/19/2002

Section 1 - Work Activity:

This work activity involves providing aircraft and aviation support to government programs world-wide under the purview of the DOE. Aircraft include modern multi-engined jet, propeller driven airplanes and helicopters. Aviation support includes aircraft maintenance, ground support, emergency response to radiological incidents, and routine non-emergency collection of scientific data. Depending on mission, the aircraft will operate as either a public or civil aircraft.

This activity provides:

- Airworthy and mission equipped aircraft.
- Trained and qualified aircrews.
- 24-hour emergency response capability.
- Aerial surveys.
- Expert assistance in developing and integrating remote sensing systems to flight operations.
- Procurement of waivers to FAA regulations and the performance of necessary coordination for operations inside special use airspace when required.
- Aviation ground support equipment necessary to support operations from remote locations.

Industrial Hygiene requirements are detailed in WBS 4.2.2.

Section 2 - Hazards and Management Issues:

Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.

Section 3 – Standards:

The necessary and sufficient set of standards are:

Standard	Title
14 CFR Series	Aeronautics and Space

3.3 Aviation

Latest Revision: 9/19/2002

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

49 CFR 171-173, 175, and 178

Hazardous Material Regulations for Transportation

***Note** Applicable portions will apply when operating as a civil aircraft. Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

49 CFR 830

Notification and Reporting of Aircraft Accidents or Incidents and Overdue Aircraft and Preservation of Aircraft Wreckage, Mail, Cargo, and Records

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

International Civil Aviation Organization (ICAO)

Flight Regulations and Requirements

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

DOE O 440.2A, CRD

Aviation Management and Safety

***Note** Added by Change Request 2000-018 - 3/19/01. Revised by BCR 2002-015.*

Federal Aviation Administration (FAA) Advisory Circular 00-1.1

Government Aircraft Operations

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

Office of Management and Budget (OMB) Circular A-126

Improving the Management and Use of Government Aircraft

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

Office of Management and Budget (OMB) Circular A-76

Performance of Commercial Activities

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

28 USC 591

Independent Safety Board Act of 1994

***Note** Hazards and management issues associated with aviation are typical of those in similar civil and commercial flying operations.*

3.3 *Aviation*

Latest Revision: 9/19/2002

Section 4 - Measurement Parameters:

- Aircraft availability rate.
- Flying hour program adherence.
- Emergency response timeliness.
- Survey Accomplishment.

Section 5 - Implementation Considerations:

The application of various standards is dependent upon the nature of the assignment, e.g., public vs. civil. A DOE and contractor approved Operations Manual includes the following guidelines:

- Training program requirements.
- Flight and duty time limitations.
- Personnel qualifications.
- Aircraft maintenance requirements.
- Flight-following procedures.
- Aviation safety documentation for each mission that has risks not normally accepted by the public.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

3.3 *Aviation*

Latest Revision: 9/19/2002

N/A

3.4 Facility Maintenance

Latest Revision: 9/30/1996

Section 1 - Work Activity:

A formal facility maintenance and repair program assures that during its useful lifetime, the facility is fully capable of supporting the mission. A facility is any structure, building, utility system or road and related appurtenances, including the equipment designed and built into the facility to support functionality. Maintenance and repair work is performed in nuclear facilities, as well as non-nuclear facilities, on installed equipment, and in some cases, the installed process equipment and systems.

The operation and maintenance of DOE Nevada facilities includes work at remote sites such as at Santa Barbara and Amador Valley in California, Los Alamos in New Mexico, on Nellis Air Force Base in Las Vegas, Nevada and on Andrews Air Force Base in Maryland. The M&R work activities must be performed to comply with the host site's ES&H requirements, and in some cases, as specified in an inter-agency support agreement, such as on Air Force Bases.

Maintenance and repair work falls into three general categories.

- Scheduled preventive maintenance is work that is scheduled to maintain existing equipment and facilities. Examples of this type of work are: cooling tower refurbishment, HVAC filter replacements, electrical equipment testing, and fire protection system testing.
- Scheduled repair or corrective maintenance is work that is required to repair facilities or equipment that has worn and, if not repaired/replaced, will soon fail and no longer be available to function as designed. Examples of this type of work are repair of air conditioning/heating equipment, replacing flooring, and repair of leaking roofs.
- Emergency repair, as the name implies, is the unscheduled work required to repair facilities or equipment that have failed, are no longer able to function to specification and may be causing an immediate hazard to health, safety or the environment that must be repaired or controlled to mitigate the hazard potential.

Maintenance and repair work is identified by the following methods:

Work requests are requests from a user group for maintenance or support services for which the site M&R crafts have the skills to perform. Examples of this type of work are hanging a white board, painting an office, or moving furniture. This work activity also includes work to support closed facilities. Facilities that are reopened are inspected to identify, correct or control hazards.

3.4 *Facility Maintenance*

Latest Revision: 9/30/1996

Service calls are either initiated over the telephone or are submitted by the M&R organization for either emergency repairs or for small, quick-to-provide services for minor work on a low priority basis when craft time is available.

ES&H Inspections often result in the identification of work requirements that are entered into the work order system for scheduling.

Preventive maintenance work orders are issued by the Computerized Maintenance Management System (CMMS) for scheduling according to the frequency of service required to maintain the facility or installed equipment recommended by either a code, an industrial standard, by the manufacturer or as a result of historical precedence or an analysis of the historical maintenance data.

The detail of work performed varies from location to location. For example, the maintenance of the roads is accomplished by the contractor at the Nevada Test Site, but not on sites where the contractor is a tenant supported through a host-tenant agreement.

Modifications are conducted under WBS 2.8, Construction.

Section 2 - Hazards and Management Issues:

The hazards associated with M&R work are typical of those encountered in the commercial sector for personnel performing maintenance and repair work. Examples of these hazards are confined space entries, noise, electricity, falls, flying debris, generating hazardous waste and exposure to toxic and hazardous substances. There are occasional work activities in radiation areas.

Failure to properly maintain and repair a facility can result in hazards to occupants of the facility, e.g., slips, trips, and falls; indoor air quality; and improper or lack of maintenance of life safety code components.

Facilities maintenance not performed when scheduled or as specified in the work instruction can result in the premature failure of equipment or systems, directly affecting the health and safety of the occupants, work delay, project delay, increased project cost, baseline adjustment or mission failure.

Management issues relating to maintenance include work control and documentation, (configuration management) materials and tool control, and training.

3. 4 **Facility Maintenance**

Latest Revision: 9/30/1996

Minor modification as a work activity are addressed as an aspect of the construction work activity, although either the maintenance or construction organization may perform the work.

Section 3 – Standards:

The work activities complies with the other program requirements developed through the necessary and sufficient process.

Rationale: The standards are the same as those found in light commercial industry performing the same type of work in Nevada and at the remote sites. The adoption of this submittal will allow the establishment of a non-nuclear maintenance support organization that uses the same standards accepted within private industry for routine maintenance and repair work.

Standard	Title
NONE	NONE
<i>Note Facility-specific design criteria (drawings, specifications, and vendor data) and equipment manufacturer's recommendations as modified by actual experience.</i>	

Section 4 - Measurement Parameters:

There are several methods for measuring the effectiveness and sufficiency of a formal maintenance and repair program:

- Equipment downtime for repair.
- Equipment repair costs.
- Comparison of NTS repair hours vs. commercial norms.

Section 5 - Implementation Considerations:

Implementation of the standards from the other applicable program requirements developed through the necessary and sufficient process are acceptable since they are presently in use.

As with any service based business, commercial maintenance programs are designed to meet the customer's needs. The implementation of commercial standards is predicated on the identification of the standards applicable to the types of work to be performed, the dissemination of the standards to the work force and the supervision of the crafts to the

3.4 *Facility Maintenance*

Latest Revision: 9/30/1996

published standards. Equally important is a program to ensure that quality parts and other work-related materials are used, and that the final product meets the design and/or manufacturer's specifications.

Repair and maintenance work should include the use of original design specifications or manufacturer's specifications and recommendations, depending upon availability and practicality. Experience and professional craftsmanship as well as information for similar equipment or facilities may be used in lieu of original specifications. The work must also meet the standards accepted in the appropriate trades for professional craftsmanship. Requests for facility modifications are routed through the engineering department for site condition verification, work scope preparation, and design.

Special projects requested may require specific standards, guides, or recommendations to be implemented. This work is handled separately and in accordance with the standards, guides or recommendations as requested by the client.

The computerized maintenance management system, FAMIS, will be implemented by September 30, 1996. FAMIS will complete the integration of the work forces located at the NTS and in Las Vegas under one work control center. The benefits are the consolidation of the management of work requirements, a centralized work schedule, a computerized repository for work history and the production of work history reports. An analysis of the history reports will enable management to improve the effectiveness and efficiency of the work force.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

None

Section 8 - Training:

Specialized training may be required for some of the work requests or services. This training is provided on an "as needed" basis, e.g., radiological worker training for work in radiological facilities.

Section 9 - Vulnerabilities:

Some of the older facilities on the NTS do not meet current ES&H condition standards. None of the deficiencies, however, present a serious threat to health, safety or the

3.4 *Facility Maintenance*

Latest Revision: 9/30/1996

environment.

3.5.1 Heavy Equipment Maintenance

Latest Revision: 5/9/2002

Section 1 - Work Activity:

This work activity covers the maintenance, repair, inspection, waste handling and storage, purchase and excess, and equipment control. It involves mobile and stationary equipment and includes the electrical and mechanical aspects of the equipment. The work activity includes work performed at the Nevada Test Site and Las Vegas facilities. At remote sites this work is provided by the host agency.

The scope of this activity includes, but is not limited to, the following types of equipment: mobile cranes, overhead and gantry cranes, drilling rigs, generators, light plants, compressors, forklifts, and many forms of earth moving equipment, i.e., dozers, scrapers, and front end loaders. Work is performed according to the manufactures' recommendations. Engineering is consulted when equipment modifications are made or a structural defect is suspected.

Equipment is inspected before and after repair work, and as recommended by national guides or manufacturers' recommendations.

The work activity involves:

Preventive Maintenance

Preventive maintenance (PM) performed in the shop or the field. The user reports the hours of use and the PM is performed at intervals recommended by the manufacturer. Repair Inspection is performed upon return from the renters or other users to determine the state of the equipment. Repairs are performed as needed. Upon completion of the repairs the equipment is inspected before being placed on the "ready line" or delivered to the user. The repairs are accomplished to meet the manufacturers' specifications or recommendations.

Some instances a field mechanic is dispatched to the field to repair problems reported through trouble calls. If necessary, the equipment is brought to the shop.

Inspection

Several types of equipment are required by codes to receive an inspection at certain intervals. Mechanical and electrical inspectors do these inspections. Some inspections are on equipment that is not controlled by the Fleet and Equipment Department. The expertise is just in the department.

Waste Handling and Storage

3.5.1 Heavy Equipment Maintenance

Latest Revision: 5/9/2002

Waste is generated during the work activity. The waste oil and lead acid batteries are stored and recycled by an offsite vendor. This is coordinated between the generator, Waste Operations, and the department office. Antifreeze is recycled on site and reused.

Purchase and Excess

Equipment, parts, and fuel are purchased using the procedures identified by the Procurement and Accounting/Costing Departments. The disposal of equipment is accomplished through the Property Management procedures.

Equipment Control

This activity involves tracking equipment location, user, and availability. It also keeps track of accumulated repair cost and repair for the equipment.

EMS

A computerized Equipment Maintenance System (EMS) provides trending and tracking of preventative maintenance, costs, and cost reclamation.

Section 2 - Hazards and Management Issues:

ES&H HAZARDS TO MAINTENANCE PERSONNEL

Hazards associated with the maintenance, repair, and inspection activities are typically the same as those encountered in a comparable industry. Some examples are: handling chemical substances, encounters with physical agents, work at elevations, proximity to rotating equipment, potential release of stored energy, and fire/burns from welding activities.

HAZARDS TO USERS

Hazards associated with failure or inadequate operation of this equipment cover a range from minor injuries to multiple fatalities.

MANAGEMENT ISSUES

Recovering maintenance and operations costs for this work activity through the rental rates while maintaining competitive and affordable rates are on going issues.

Budget or schedule impacts may occur due to failure of equipment resulting from improper or lack of maintenance.

3.5.1 Heavy Equipment Maintenance

Latest Revision: 5/9/2002

Section 3 – Standards:

The work activities comply with the other program requirements developed through the necessary and sufficient process. Rationale: the standards used are no different than the commercial industry standards for this type of work. The standards for procurement and excessing equipment is covered under WBS 1.0.

Standard	Title
30 CFR Part 35	Fire Resistant Hydraulic Fluids
<i>Note Provides specifications for hydraulic fluids used underground.</i>	
30 CFR Part 36	Approval Requirements for Mobile Diesel Powered Underground Transportation Equipment
<i>Note Provides specifications for the type of diesel powered equipment that can be operated underground.</i>	
30 CFR Parts 18	Electrical Motor Driven Mine Equipment and Accessories
<i>Note Requirements for mine hoists and ancillary equipment.</i>	
American National Standards Institute (ANSI)	Applicable Standards
<i>Note Applicable ANSI standards in addition to those included by reference in the 29 CFR sections (for equipment not covered by the OSHA standards).</i>	
American Society of Mechanical Engineers (ASME)	Boiler and Pressure Vessel Code
<i>Note</i>	
Crane Manufactures Association of America	Applicable Standards
<i>Note</i>	
Society of Automotive Engineers (SAE)	Applicable Standards
<i>Note</i>	
Manufacturer's Specifications	Manufacturer's Specifications
<i>Note Manufacturer's recommendations or engineering specifications (if modifications to the standard vendor product have been made).</i>	

Section 4 - Measurement Parameters:

3.5.1 Heavy Equipment Maintenance

Latest Revision: 5/9/2002

The EMS, which is a computerized management system, allows for tracking and trending:

- Rentals versus equipment on the ready line.
- Cost of maintenance versus the projected equipment life.
- Actual versus scheduled preventive maintenance.

Section 5 - Implementation Considerations:

Implementation of the standards will have a limited impact because this is the current condition at the Test Site. The Hoisting and Rigging (H&R) Manual (DOE/ID-10500) is now a handbook. There is no requirement to follow this as a standard.

Tracking maintenance and repair costs is necessary because money cannot be spent to maintain a piece of equipment that is not receiving any revenue. The instances where this occurs will be considered on a case by case basis whether the maintenance or repair will be completed.

The work is performed by skilled and trained mechanics. Inspection before and after the repair is necessary to reduce equipment failures in the field. This is the same type of quality control used in commercial industry.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

None

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

3. 5.2 *Fleet Maintenance*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Fleet Maintenance work activities include:

- Inspecting and preparing documents for purchase of new vehicles.
- Inspecting new vehicles and installing license plates, decals, communications radios, service bodies, etc.
- Tracking motor vehicle usage, scheduling, and performing preventive maintenance, e.g., oil and oil filter changes.
- Recycling used oil, oil filters, antifreeze, tires, Freon refrigerants, and batteries.
- Operating a welding and fabrication shop to support maintenance and repair. This shop also supports other organizations as needed and funded.
- Inspecting and reclaiming reusable government property from vehicles to be excessed.
- Operating service stations and fuel delivery trucks for facilities and operations at the NTS.

Section 2 - Hazards and Management Issues:

HAZARDS:

Hazards associated with fleet maintenance are generally those encountered in similar commercial or government fleet maintenance and control operations. Examples of these hazards are working under lifted and blocked vehicles and equipment; flying objects when inflating and repairing multi-piece rim tires; exposures to lead contamination, hydrogen gas, heat and acid; biological hazards; and high voltage from dielectric testing.

MANAGEMENT ISSUES:

Insufficient data is collected on usage, wear and maintenance of vehicles preventing adequate control for customizing maintenance requirements, e.g., oil/oil filter changes, transmission oil changes, gas dispensing meter calibrations, etc.

The restricted availability of Freon may impact the maintenance activities on fleet vehicles. A systematic approach to the replacement of Freon-based systems/processes should be developed.

3.5.2 Fleet Maintenance

Latest Revision: 9/30/1996

Section 3 – Standards:

The following standards are used by commercial industry involved in the fleet operations and maintenance activities:

Standard	Title
29 CFR 1910 Subpart (Q)	Welding, Cutting, and Brazing
<i>Note Requirements for welding, cutting, and brazing.</i>	
29 CFR 1910.1001	Asbestos
<i>Note Requirements for asbestos (for brake repair).</i>	
29 CFR 1910.106	Flammable Liquids
<i>Note Requirements for flammable and combustible liquids and servicing multi-piece and single piece wheel rims.</i>	
29 CFR 1910.177	Servicing Multi-Piece and Single-Piece Rim Wheels
<i>Note Requirements for flammable and combustible liquids and servicing multi-piece and single piece wheel rims.</i>	
40 CFR 82 Subpart B	Protection of Stratospheric Ozone
<i>Note</i>	
48 CFR 1 - 53	Federal Acquisition Regulation System
<i>Note</i>	
49 CFR 180, Part E, 401 - 417	Qualification and Maintenance of Cargo Tanks
<i>Note DOT, Research and Special Programs, Hazardous Materials Transportation Regulations 49 CFR 180.401 - 417, Qualification and Maintenance of Cargo Tanks.</i>	
49 CFR 382-399	Subchapter B – Federal Motor Carrier Safety Regulations (FMCSR)
<i>Note DOT, Office of Motor Carriers, Federal Motor Carrier Safety Regulations (FMCSR), 49 CFR Parts 382 - 399.</i>	
49 CFR 570	Vehicle In Use Inspection Standards
<i>Note 49 CFR 570 is the default maintenance standard.</i>	
49 CFR 571	National Highway Traffic Safety Administration, Federal Motor Vehicle Safety Standards (FMVSS)

3.5.2 Fleet Maintenance

Latest Revision: 9/30/1996

***Note** DOT, National Highway Traffic Safety Administration, Federal Motor Vehicle Safety Standards (FMVSS) 49 CFR Part 571.*

Society of Automotive Engineers (SAE)	Applicable Standards
---------------------------------------	----------------------

Note

Tire and Rim Manufacturer's Association, Inc. (TRMA)	Recommended Practices for Fleet Operations
--	--

Note

Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste
--	-----------------------------

Note

Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste
--	-----------------------------

Note

Section 4 - Measurement Parameters:

- Ratio of direct (billable) to indirect (overhead) charges for fleet support.
- Cost per mile to operate.
- Vehicle availability (% of time a vehicle is available to be operated in a time period).
- Vehicle utilization (% of Hours/Days operated in a time period of total possible, more relevant to scheduled truck operations but can indicate light duty vehicle usage when combined with mileage).
- Labor flat-rate comparison. (% of work completed within industry standard flat-rate time allowances for routine work).
- Vehicle value retention (% of acquisition cost recovered at sale or excess).

Section 5 - Implementation Considerations:

Most of the standards are implemented. Actions to complete implementation are in progress resulting in minimal impact.

Vehicles and equipment are maintained to manufacturer's recommendations and guides. If these recommendations are not available, the inspection guidance in 49 CFR 570 is used.

3.5.2 Fleet Maintenance

Latest Revision: 9/30/1996

Standards are passed down to subcontractors in the procurement process. The selection of commercial vendors to install service bodies includes screening of qualifications. This helps protect DOE from liability under 49 CFR 571.

Qualified facilities need to be established for servicing Commercial Motor Vehicles (CMVs) stationed at Andrews Air Force Base in Maryland and notification generated to all CMV drivers as to who and where the qualified facilities are.

Screens or barriers are installed in vehicles that transport property and equipment as a best management practice for driver and passenger protection.

Implementation of Equipment Management System (EMS) software to collect sufficient data on usage, wear, and maintenance of vehicles is in progress. The system allows trending and validation of the safety and cost effectiveness of increasing service time and mileage intervals.

The following industry guides are also used:

- Alldata Inc., Vehicle Manufacturer's Factory Data Service (Industry guide)
- American Welding Society (AWS), Welding Codes (as applicable)
- GSA Vehicle Procurement Guidelines and Specifications.
- Kelley Blue Book Auto Market Report of new & used vehicle prices. (Light Duty, Industry guide)
- Mitchell's Parts and Labor Estimating Guide
- Motor's Parts and Time Guide, by Hearst Business Publishing, Inc.
- National Market Reports, Inc. The Older Truck Blue Book, of heavy duty truck prices.
- National Fire Protection Association, Inc.: NFPA 385, Standards for Tank Vehicles for Flammable and Combustible Liquids.
- Society of Automotive Engineers (SAE), recommended practices.
- The Tire and Rim Manufacturer's Association, Inc., recommended practices.

3. 5.2 *Fleet Maintenance*

Latest Revision: 9/30/1996

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

The present fleet is old and over mileage as defined by the Federal Property Management Regulations (FPMR). Vehicle replacement funding is not available.

The Federal Acquisition Regulations System (FARS) requires purchase of vehicles through GSA. Uncertain delivery times are caused by GSA holding orders from many organizations to make large lot purchases once or twice a year. This has a direct impact on fleet operations for vehicle turnover.

Section 8 - Training:

Fleet maintenance personnel qualifications are certified by the respective unions for the employees. Special training required by regulations are provided for personnel as needed.

Section 9 - Vulnerabilities:

Light duty vehicles garaged in Clark County may be subject to annual emissions testing the same as private vehicles. Presently these vehicles are not tested for emissions. The EPA can inspect vehicles and levy fines for non-compliance to emissions standards.

3. 6.a *Transportation (Labs)*

Latest Revision: 8/13/2002

Section 1 - Work Activity:

Transportation is the movement of passengers or property, on the premises or in commerce, by commercial motor vehicle. The work activity includes:

- Moving equipment, materials, and people on and off public highways and other transportation support activities. Specific examples are: moving construction equipment and potable/non-potable water; watering roads and work areas; driving snow plows; transporting hazardous materials; delivering fuel; and lubricating construction equipment in the field.
- Providing furniture and office equipment movement teams with specialized trucks and equipment.
- Providing qualified, licensed drivers to support DOE/NV operations.
- Providing Department of Transportation (DOT) "Principle Place-of-Business" record keeping for motor carrier operations and qualifications of drivers.
- Providing third-party driver skills evaluations for Nevada commercial drivers licenses (CDL) for company drivers.
- Providing oversight for applicable transportation regulations.
- Providing management and oversight for the subcontracted NTS shuttle-bus system.
- Evaluating local and regional motor carriers.
- Packaging, shipping, and receiving of equipment, waste, or property. The shipments can be non-hazardous or hazardous.

Section 2 - Hazards and Management Issues:

HAZARDS:

The hazards of this work activity are typical of those found when the work is performed in similar commercial/industrial enterprises. Examples of hazards are ergonomic conditions, exhaust fumes, and hazardous materials, movement of heavy equipment and vehicles.

MANAGEMENT ISSUES:

3. 6.a **Transportation (Labs)**

Latest Revision: 8/13/2002

Management issues are similar to commercial industries involved in public and private transport. Most notable of these are the potential for fines and, for flagrant violations, imprisonment.

Section 3 – Standards:

The standards for this work activity are those applicable to commercial enterprises, operating transportation service companies. DOE contractors operating commercial motor vehicles (CMVs) are private motor carriers involved in intrastate and interstate commerce, and are subject to DOT regulation on public roads. DOE contractors are regulated by DOT if they offer for shipment or receive HAZMAT via common carriers. Because the NTS is a private facility, DOT regulations are not applicable. However, the spirit of the DOT regulations are imposed through training and management practices to assure consistency.

The 49 CFR requirements are meant to apply to transportation in commerce. For transportation which is not in commerce, the contractor is expected to live within the spirit of the DOT regulations, and provide safe transportation (as would an industrial counterpart). Definition of the mechanisms to do this is the responsibility of the contractor.

Standard	Title
10 CFR 71	Packaging and Transportation of Radioactive Material
<i>Note Added by BCR 1997-004</i>	
15 CFR 30	Foreign Trade Statistics Regulations
<i>Note Added by BCR 1997-004</i>	
<i>U. S. Department of Commerce, Customs Regulations, 15 CFR Part 30, Foreign Trade Statistics Regulations, for classification of domestic and foreign commodities exported.</i>	
15 CFR 768-799	U.S. Import Certification and Delivery Verification Procedure
<i>Note Added by BCR 1997-004</i>	
<i>Export Administration Regulations, and the Harmonized Tariff Schedule of the United States.</i>	
49 CFR 107 Subpart B	Exemptions
<i>Note</i>	

3. 6.a Transportation (Labs)

Latest Revision: 8/13/2002

49 CFR 107 Subpart G

Registration of Persons Who Offer or
Transport Hazardous Materials

Note

49 CFR 171-183

Hazardous Materials Transportation
Regulations

Note Added by BCR 1997-004

49 CFR 382, 383, 387, 390-399

Subchapter B – Federal Motor Carrier
Safety Regulations (FMCSR)

Note Added by BCR 1997-004

Applicable to interstate commerce.

Institute for Manufacturers of Explosives
(IME) Safety Library Publication No. 22

Standard 22

Note Added by BCR 1997-004

*IME for transport of explosives and detonators on the same truck
(incorporated by reference in 49 CFR 177.835).*

International Air Transport Association
(IATA)

Dangerous Goods Regulations

Note Added by BCR 1997-004

International Civil Aviation Organization
(ICAO)

Flight Regulations and Requirements

Note Added by BCR 1997-004

Nevada Revised Statutes (NRS) 483.912

Administration of Driving Skills Test by
Person or Agency Other Than Department;
Credit for Passing Test

Note Added by BCR 1997-004

Regulations for third party CDL drivers skills examiners.

Section 4 - Measurement Parameters:

- DOT Motor Carrier Safety Fitness Rating.
- Ratio of accidents per million miles, by company CMVs.

Section 5 - Implementation Considerations:

3.6.a *Transportation (Labs)*

Latest Revision: 8/13/2002

Management systems to adequately control shipping and receiving at the outlying facilities in California, at the Remote Sensing Laboratory (RSL) on Nellis AFB, at Los Alamos, New Mexico, and at Andrews AFB in Maryland are being implemented.

During an actual nuclear emergency response, Nuclear Emergency Search Teams (NEST) are exempt from regulatory compliance. However, NEST emergency exercises are planned to ensure that all CMV operations are performed within FMCSR and/or HAZMAT compliance, yet retain as much of the emergency operation sense as possible.

Vendor qualification of local commercial repair shops is required to ensure personnel who perform annual safety inspections or inspect, service, or maintain the brakes on CMVs are qualified to the minimum standards of FMCSR Part 396.

The Automated Transportation Management System (ATMS) should be used for transportation reporting and record keeping.

A very specific implementation consideration is the need to assure any bill of lading, airbill, or any other commercial document covering shipments made by or to the contractor on DOE's behalf contain either:

- United States Department of Energy "in care of" the contractor, or
- The contractor "for the United States Department of Energy."

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

National Laboratories and DOE contractors provide their own compliance oversight on the NTS. No mechanism coordinates transportation and compliance activities on the NTS.

The standards identified in this document are intended to ensure compliance for transport in commerce, on the public highways, off the NTS.

Transportation operations are fragmented and decentralized in the judgment of the DOT, when comparing DOE contractor operations to a typical commercial or private motor carrier. For example, DOE contractor CMVs are driven on public highways by different organizational groups, in several states, yet a company-wide system to record and track total mileage of CMVs on public highways is lacking. The ratio CMV accidents to miles traveled is used by DOT to measure carrier safety performance.

3. 6.a *Transportation (Labs)*

Latest Revision: 8/13/2002

Section 8 - Training:

Transportation Managers, Traffic Manager, Drivers and other transportation workers are trained in accordance with the applicable regulations.

Section 9 - Vulnerabilities:

N/A

3.6.b *Transportation (BN and WSI)*

Latest Revision: 8/14/2002

Section 1 - Work Activity:

Transportation includes those activities related to the planning, preparation, and movement of passengers, material, and property by, for, or on behalf of DOE. The work activity includes:

- Transportation of equipment, materials, and people on property owned or controlled by DOE on and off public highways, in interstate, intrastate, or foreign commerce by any mode.
- Performing oversight activities of a company's transportation operations to assure those operations conducted on property under the control of DOE and operations originating on DOE property and extending to commerce comply with applicable requirements.
- Assuring the safety, quality, effectiveness, adequacy, and completeness of packaging, shipping and receiving of all material.
- Assure the BN Fire Protection & Emergency Medical Services is notified of all hazardous materials movements on the Nevada Test Site in accordance with DOE/NV P 460.X "Implementation and Operation of the Hazardous Materials Notification System (HAZTRAK)"

Section 2 - Hazards and Management Issues:

The hazards of this work activity include those found when the work is performed by similar commercial entities conducting transportation operations. These include hazards associated with the operation of large commercial motor vehicles, loading and unloading of cargo, movement of over-dimensional or overweight commodities, and the packaging, transportation, and handling of hazardous materials.

MANAGEMENT ISSUES:

Management issues associated with this activity are similar to those found when the work is performed by similar commercial entities conducting transportation operations. Most notable of these issues are the challenges inherent in the uniform application of sufficient management controls for decentralized transportation activities. Sufficient management controls must prevent violations of regulatory requirements and the imposition of civil monetary penalties, as well as possible imprisonment.

Section 3 – Standards:

3.6.b ***Transportation (BN and WSI)***

Latest Revision: 8/14/2002

The standards for this work activity are those applicable to similar commercial entities operating transportation service companies. DOE contractors performing transportation-related activities are subject to federal, state, and local regulation. DOE contractors are regulated by DOT if they offer or receive hazardous materials via commercial or for-hire carriers. Onsite hazardous materials (including nuclear components, Naval nuclear fuel elements, Category I and Category II special nuclear materials, special assemblies, and other materials of national security interest) transfers shall comply with the hazardous materials regulations, or the site- or facility specific cognizant Operations or Field Office approved Transportation Safety Document that describes the methodology and compliance process to meet equivalent safety for any deviation from the hazardous materials regulations. (For offsite shipments, the same requirements apply, however as an alternative for materials covered by 461.1, an offsite transportation certificate or authorization approved by the Manager, Albuquerque Operations Office may be utilized). Industry recognized transportation standards are imposed on all transportation activities to ensure consistent application of these standards and ensure compliance for transportation-related activities

Standard	Title
10 CFR 71	Packaging and Transportation of Radioactive Material
<i>Note</i> None.	
10 CFR Part 73	Physical Protection of Plants and Materials
<i>Note</i>	
15 CFR 30	Foreign Trade Statistics Regulations
<i>Note</i> U.S. Department of Commerce, Customs Regulations, 15 CFR Part 30, Foreign Trade Statistics Regulations, for classification of domestic and foreign commodities exported.	
15 CFR 768-799	U.S. Import Certification and Delivery Verification Procedure
<i>Note</i> Export Administration Regulations, and the Harmonized Tariff Schedule of the United States.	
41 CFR Part 101-40	Federal Property Management Regulations - Transportation and Traffic Management
<i>Note</i> Added as mandatory federal requirement per BCR-2001-019.	
41 CFR Part 109-40	DOE Property Management Regulations - Transportation and Traffic Management

3.6.b Transportation (BN and WSI)

Latest Revision: 8/14/2002

Note Added as mandatory federal requirement per BCR-2001-019.

48 CFR Part 47	Transportation
----------------	----------------

Note Added as mandatory federal requirement per BCR-2001-019.

49 CFR 171-180	Hazardous Materials Transportation Regulations
----------------	--

Note Applicable to on-site, interstate, intrastate, and foreign commerce.

49 CFR 382, 383, 387, 390-399	Subchapter B - Federal Motor Carrier Safety Regulations (FMCSR)
-------------------------------	---

Note Applicable to interstate commerce.

49 CFR Part 107	Hazardous Materials Program Procedures
-----------------	--

Note Applicable to interstate, intrastate, and foreign commerce.

Added as mandatory federal requirement per BCR-2001-019.

Institute for Manufacturers of Explosives (IME) Safety Library Publication No. 22	Standard 22
---	-------------

Note IME for transport of explosives and detonators on the same truck (incorporated by reference in 49 CFR 177.835.)

International Air Transport Association (IATA)	Dangerous Goods Regulations
--	-----------------------------

Note None.

International Civil Aviation Organization (ICAO)	Flight Regulations and Requirements
--	-------------------------------------

Note None.

DOE O 460.1A, CRD	Packaging and Transportation Safety
-------------------	-------------------------------------

Note Added by BCR 2001-104. The inclusion of this CRD is enacted to meet requirements for safe harbor provisions of 10 CFR 830.

DOE O 460.2, CRD	Departmental Materials Transportation and Packaging Management
------------------	--

Note Added by BCR 2001-014. The inclusion of this CRD is enacted to meet regulatory and DOE requirements for the consistent and compliant movement of DOE materials.

DOE O 461.1, CRD	Packaging and Transfer, or Transportation of Materials of National Security Interest
------------------	--

Note Added by BCR 2001-014. The inclusion of this CRD is enacted to meet requirements for safe harbor provisions of 10 CFR 830. DOE O 461.1

3. 6.b Transportation (BN and WSI)

Latest Revision: 8/14/2002

replaces canceled DOE Order 5610.12.

NV P 460.X	Compliance With Implementation and Operation of the Hazardous Materials Notification System (HAZTRAK)
------------	---

***Note** Added by BCR 2001-014. This Policy applies to hazardous materials transportation operations and activities at the Nevada Test Site (NTS).*

Nevada Administrative Code (NAC) Chapter 459	Hazardous Material
---	--------------------

***Note** Added as mandatory federal requirement per BCR-2001-019.*

Nevada Administrative Code (NAC) Chapter 484	Traffic Laws
---	--------------

***Note** Added as mandatory federal requirement per BCR-2001-019.*

Nevada Administrative Code (NAC) Chapter 706	Motor Carriers
---	----------------

***Note** Added as mandatory federal requirement per BCR-2001-019.*

Nevada Revised Statutes (NRS) Chapter 459	Hazardous Material
--	--------------------

***Note** Added as mandatory federal requirement per BCR-2001-019.*

Nevada Revised Statutes (NRS) Chapter 484	Traffic Laws
--	--------------

***Note** Added as mandatory federal requirement per BCR-2001-019. Applicable to intrastate commerce.*

Nevada Revised Statutes (NRS) Chapter 706	Motor Carriers
--	----------------

***Note** Added as mandatory federal requirement per BCR-2001-019. Applicable to intrastate commerce.*

Section 4 - Measurement Parameters:

Traffic Management Performance Measures may include:

- DOT Motor Carrier Safety Fitness Rating.
 - Freight tonnage and number of items shipped and received.
 - Number and types of errors found on outbound hazardous materials shipments.
-

3.6.b *Transportation (BN and WSI)*

Latest Revision: 8/14/2002

- Freight claims performances, by carriers

Section 5 - Implementation Considerations:

Transportation operations are subject to interstate regulations when the movement of property or passengers terminates in a state/province/country/ outside where the movement began.

Interstate transportation standards are applicable to transportation operations involving motor vehicles:

- (1) With a gross vehicle weight rating (GVWR) in excess of 10,000 pounds;
- (2) If towing a trailer, with a gross combined weight rating (GCWR) in excess of 10,000 pounds;
- (3) With an actual gross weight of more than 10,000 pounds;
- (4) Of any size, used to transport a quantity of hazardous materials requiring placarding; or
- (5) Designed to transport more than 15 passengers.

For transportation operations and motor vehicles that are wholly operated in Nevada, the Nevada NRS and NAC transportation regulations are applicable. These intrastate requirements are applicable to transportation operations involving motor vehicles:

- (1) With a gross vehicle weight rating (GVWR) in excess of 26,000 pounds,
- (2) If towing a trailer, with a gross combined weight rating (GCWR) in excess of 26,000 pounds, or
- (3) With an actual gross weight of more than 26,001 pounds.

Management systems to control shipping and receiving, including the outlying DOE/NV facilities in California, at the Remote Sensing Laboratory (RSL) on Nellis AFB, at Los Alamos, New Mexico, and at Andrews AFB in Maryland will be implemented.

Until such time that an Onsite Transportation Safety Document (as required by 460.1A and 461.1) is approved by the Operations Office, an onsite exception to an applicable standard may be requested when an applicable standard or element of the standard poses a significant obstacle to the successful completion of an activity. To obtain an exception a Request for Limited Deviation shall be generated, identifying administrative hazard controls that, when implemented, will provide an equivalent or better level of protection. Contractors and NTS users shall implement a system for submitting Requests for Limited Deviations for approval by the Operations Office

Section 6 - Work Environment:

3. 6.b *Transportation (BN and WSI)*

Latest Revision: 8/14/2002

Office, warehouse, vehicle, and various NTS facilities where packaging, transfer, and transportation operations are conducted.

Section 7 - Uncertainties or Issues:

Issues or impacts as result of new onsite packaging and transportation regulations and orders.

Section 8 - Training:

Each employee involved in transportation related activities will receive training commensurate with their responsibilities. Managers will maximize the use of classes held at Bechtel Nevada facilities.

Section 9 - Vulnerabilities:

Potential violations of Price Anderson Amendment Act provisions if not implemented.

Potential citations by U.S. Department of Transportation for violations of modal hazardous materials regulations.

Potential non-compliance with DOE Headquarters established requirements for on-site transportation operations.

3. 7 *Industrial Security*

Latest Revision: 8/7/2002

Section 1 - Work Activity:

This work activity is for security services as it relates to the Industrial Security mission for DOE/NV Operations Office not including those activities required to protect Special Nuclear Material (SNM). Services are performed by contractor organizations at the NTS and Las Vegas, Nevada; Amador Valley Operations and Special Technologies Laboratory, California; Los Alamos Operations, New Mexico; Washington Aerial Measurements Operations, Andrews AFB, Maryland; and Yarrow Associates, Virginia. There are five major areas of security services: General Security, Physical Security, Technical Security, Internal/Personal Security and Security Education and Operations Security (OPSEC).

General Security Services includes:

- Badge services
- Access control
- Facility checks/Security patrols
- Protection of property and security interests
- Searches of vehicle and personnel hand-carry items
- Response to security and fire protection alarms
- Enforce property removal policies and procedures
- Prepare written security station orders
- Escort duties for classified materials/equipment
- Detain personnel, as appropriate
- Monitor alarms and surveillance cameras/equipment in the Primary and
- Secondary Alarm Stations
- Participate in security training exercises (alarm and emergency response)

Physical Security includes:

- Facility and other security plans (including printing) development
- Operating procedures development for physical security
- Performance tests of physical security program
- Investigation of the loss or theft of government property
- Implementation of security lock and key control procedure

Technical Security includes:

- Establishment of technical security standards, programs, and guidelines.
- Classified Computer Security (CCS) Program Unclassified Computer Security (UCS).

3. 7 *Industrial Security*

Latest Revision: 8/7/2002

- Program Technical Surveillance Countermeasures (TSCM) Program.
- Communications Security (COMSEC) Program engineering guidance for alarm systems and electronic access control systems.

Internal/Personnel Security includes:

- Procedures to protect classified matter
- Visitor Control program
- New-hire and terminating employee security processing
- Classified matter handling education program
- Personnel Security Program (Security clearances)

Security Education and Operations Security (OPSEC) includes:

- Operations Security (OPSEC) program
- Employee Security Education program
- OPSEC assessments
- Administer the OPSEC Waste and Disposal Program
- OPSEC administrative support

The NISCG noted that "armed Security Police Officers" may serve in positions where only unarmed access control personnel are required. Security should be considered as three related but distinct work activities:

a) Safeguards and Security of Special Nuclear Material (SNM). Within the Safeguards and Security of SNM, specific requirements exist for Special Police Officers (SPO) work activities regarding the use of force (including deadly force), physical and mental fitness (Personnel Assurance Program); training including crowd/riot control and tactical methods, and firearms safety. Specific requirements, standards and guidelines have been established for these activities through DOE Orders and local implementing documents (including DOE/NV guidance). Such requirements are for the protection of SNM and the prevention of the theft of SNM and are therefore outside the scope of this activity.

When the SPOs are deployed to work stations where an armed security person is not required, they bring this knowledge with them. The use of force at these work stations may be invoked in rare instances, which are included in the SPO training. A non-SPO security person deployed to the same work station would not be trained in, nor expected to invoke the use of force.

3. 7 *Industrial Security*

Latest Revision: 8/7/2002

b) Nye County arrest authority only as deputies of Nye County Sheriff (on NTS only). This work activity is somewhat unique in that SPOs have been deputized by the Nye County Sheriff's Office for supporting activities on the NTS. When acting in this capacity, the SPO is acting as an agent of Nye County under the auspices of the Nye County Sheriff.

c) Industrial Security. The work activity described in the N&S is based on commercial and government "industrial security" practices. During the process of identifying the work activity, and attempting to identify alternate (necessary and sufficient) standards for security activities, coordinating was accomplished with other DOE/DoD contractors, DOE field offices, and industrial/commercial organizations.

The hazards and management issues, Section 2.0, and the standards, Section 3.0, are based upon information from these contacts. In an industrial/commercial environment, access control is normally performed by non-armed personnel, e.g., a receptionist.

Section 2 - Hazards and Management Issues:

Hazards:

- Risk of injury resulting from vehicle accidents.
- Risk of injury during training exercises (such as physical conditioning or application of non-lethal force).

Management Issues:

- Failure to protect property and security interests may adversely impact national security or the health and safety (e.g., violence in the workplace, sabotage, etc.) of DOE and contractor employees, the public, or damage the environment. Failure to control access to facilities or security interests may result in compromise of classified or sensitive material.
- Failure to control access to facilities or security interests may result in compromise of classified or sensitive material.
- Computer and data security including unauthorized access, computer/data sabotage and virus protection.

Section 3 – Standards:

The standards for this work activity are the same as those used in commercial industry and other related government security contracts. The requirements necessary to protect Special

3. 7 **Industrial Security**

Latest Revision: 8/7/2002

Nuclear Material are not within the scope of this document.

DOE facilities are protected as approved in site specific facility plans. The local DOE Operations Office determines the level of protection and protection strategies that are necessary and sufficient. Counterparts at industrial/commercial organizations develop in-house policies (Standard Operating Procedures, etc.), which are risk/threat driven. Manufacturers, wholesalers, retailers, and service businesses tend to place security emphasis on keeping intruders out of the facilities and applying a modicum of entry and circulation controls when allowing announced visitors into their midst.

Standard

Title

10 CFR 860

Trespassing on Department of Energy Property

Note Issued for the protection and security of facilities, installations, and real property subject to the jurisdiction or administration of, or in the custody of DOE.

DOE O 1240.2B

Unclassified Visits and Assignments by Foreign Nationals

Note

DOE O 440.1A, CRD, Attachment 2, Paragraph 21

Motor Vehicle Safety

Note Reference paragraph corrected by Change Request 2000-009, 08/22/2000.

NV O 470.X

Intruder Interdiction

Note Added by BCR 90-012, 4/29/99.

Department of Defense (DoD) 5220.22-M

National Industrial Security Program Operating Manual

Note

Executive Order 12829

National Industrial Security Program

Note This document serves as a single, integrated, cohesive industrial security program to protect classified information and to preserve economic and technical interests. Per DOE/NV, they have not heard of a change in the near future for 10865. Executive Order 12829 states that it is revoking 1A and 1B of Executive Order 10865 as of Jan 6, 1993, though both orders are still currently in existence.

State of California Private Security Services Act, Chapter 11.5

Private Security Services

3. 7 *Industrial Security*

Latest Revision: 8/7/2002

Note This standard is applicable to California activities only.

Section 4 - Measurement Parameters:

- Limited Scope Performance Tests.
- Alarm Response.
- Security infraction information.

Section 5 - Implementation Considerations:

The work activity described in Section 1.0 is in support of DOE/NV's mission excluding the protection of SNM. The standards in Section 3.0 are currently implemented. There is no impact to security programs.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Some positions covered under stated standards are staffed by Uniformed Protective Force personnel under a collective bargaining agreement and may be subject to further negotiation.

Currently, because of the availability of the Special Police Officers (SPOs) who are trained in crowd/riot control, they are deployed to provide additional "access control" at demonstrations at the DOE/NV facilities in Las Vegas. As the number of SPOs for the protection of SNM decreases, this capability may disappear. This would require a management decision concerning what level and type of effort that would be required. In an industrial/commercial environment, this support would be supplied by private security services, by local law enforcement agencies, or by establishing administrative guidelines, e.g., lock the doors, and close-up shop.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

3. 8.1 **Power**

Latest Revision: 9/20/2002

Section 1 - Work Activity:

The NTS Power System is a utility supplying electric power at voltage levels required. The transmission voltage levels of the NTS Power System are 138KV and 69KV. Distribution voltage levels are 34.5KV, 12.5KV, and 4.16KV. The scheduled work activity for operators of the electric power system is 24 hours per day, seven days per week. The scheduled activity for maintenance personnel of the electric power system is 10 hours per day, 4 days per week. Maintenance is performed by craftsmen titled High Voltage Electrical Mechanics, High Voltage Line Mechanics and Industrial Control Wiremen. Substations, transmission lines and distribution lines are maintained through inspections, preventive maintenance, and emergency repair. Work is scheduled by using a work package and trouble call system.

NTS power dispatchers are responsible for the operation of the electric power system on an around-the-clock basis.

Section 2 - Hazards and Management Issues:

Hazards to operation and maintenance craftsmen include working at elevated heights, working near energized conductors and equipment, and working with mechanical equipment required for performance of maintenance and operation. These hazards are typical of work conducted in similar industries.

Section 3 – Standards:

The latest version/edition of the listed standard are used unless otherwise specified by the authority having jurisdiction.

Standard	Title
29 CFR 1910.269	Electric Power Generation, Transmission And Distribution
<i>Note Provides basic standards for lock-out and tag-out procedures.</i>	
29 CFR 1926 Subpart V, Sections 950-960	Power Transmission and Distribution
<i>Note Requirements for construction of transmission lines and equipment.</i>	
ANSI C2-2002	American National Standards Institute on Safety (NESC)
<i>Note Added by BCR 2002-024. Applicable to electrical utilities design and work.</i>	
Institute of Electrical and Electronic Engineers (IEEE)	Standards for Engineering in Safety, Maintainability and Operability of Lines

3. 8.1 Power

Latest Revision: 9/20/2002

(ESMOL)

Note *IEEE Standards for Engineering in Safety, Maintainability and Operability of Lines (ESMOL) - Suite of 9 standards.*

Institute of Electrical and Electronic Engineers (IEEE) Standards Collection (C57)	Distribution, Power and Regulating Transformers
--	---

Note *IEEE Standards Collection (C57), Distribution, Power and Regulating Transformers - Suite of 64 standards.*

Section 4 - Measurement Parameters:

- Availability of electric utility service vs. specified service.
- Delivered cost of power.
- Preventive Maintenance Past Due.
- Unscheduled repairs due to equipment malfunction.

Section 5 - Implementation Considerations:

The standards cited above are currently in use with no impact.

Work on the NTS Power System is strictly controlled by NTS Power Dispatchers, using centrally controlled lock-out tag-out procedures.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Operation and maintenance personnel qualifications are certified by the respective unions for the employees.

Section 9 - Vulnerabilities:

N/A

3. 8.2 **Water and Steam**

Latest Revision: 9/30/1996

Section 1 - Work Activity:

This work activity describes the work at the NTS. Water and Steam systems are operated and maintained to supply public drinking water, to support non-potable water demands, (e.g., construction work) and steam for building heating and process work. The demand for this work activity is continuous, i.e., twenty four hours per day and seven days per week. Supply of potable/non-potable water and steam consists of maintaining systems that provide adequate pressure and water quality. The source of the water at the NTS is ground water.

- Operations: The work activity includes continuous operation of water wells, booster pumps, chlorinators, distribution and transmission pipelines, storage tanks, construction water sumps, water treatment facilities, steam boilers and water treatment of boiler water.
- Maintenance: Maintenance consists of preventive, and corrective maintenance of water wells, booster pumps, chlorinators, distribution and transmission pipelines, storage tanks, construction water sumps, water treatment facilities and steam boilers.

Section 2 - Hazards and Management Issues:

Hazards of the work activity include handling different forms of chlorine and combustible fuels, working with large pumping equipment, electrical equipment, hot surfaces, and repairing underground pipelines, which are typical of those encountered in general industry.

Section 3 – Standards:

The Necessary and Sufficient standards consist of the following:

Standard	Title
29 CFR 1926 Subpart P	Excavations
<i>Note Requirements for work in excavations or trenches.</i>	
American Society of Mechanical Engineers (ASME)	Boiler and Pressure Vessel Code
<i>Note</i>	
Nevada Administrative Code (NAC) 445A.450 - 445A.459	Water Quality
<i>Note The standards identified are those used by general industry for this work activity.</i>	
Nevada Administrative Code (NAC) 445A.485 - 445A.492	Water Quality – Reporting through Severability

3. 8.2 **Water and Steam**

Latest Revision: 9/30/1996

***Note** The standards identified are those used by general industry for this work activity.*

Nevada Administrative Code (NAC) 445A.617 - 445A.652	Certification of Operators of Privately Owned Systems
---	--

***Note** The standards identified are those used by general industry for this work activity.*

Nevada Administrative Code (NAC) 445A.655 - 445A.682	Water Supply
---	--------------

***Note** The standards identified are those used by general industry for this work activity.*

Section 4 - Measurement Parameters:

Availability of water and steam service vs. specified service.

Cost of water and steam service.

Maintenance backlog.

Preventive maintenance conducted vs. repair.

Section 5 - Implementation Considerations:

The standards cited above are currently in use with no impact.

Industry guides and recommendations for use in the operations and maintenance of the water and steam systems are:

- American Water Works Association Standards (Guide).
- National Electric Code.
- Manufacturer's recommendations for the operation and maintenance of the system and components.

Inspections are conducted in accordance with WBS 2.7.4, Visual Inspections and Quality Control Inspections. Maintenance and repair work is performed in accordance with WBS 3.4, Facility Maintenance.

3. 8.2 *Water and Steam*

Latest Revision: 9/30/1996

Water and Steam systems are operated by craftsmen of the International Union of Operating Engineers. These craftsmen also operate the steam boilers at the NTS. Water Systems are maintained by craftsmen of the International Brotherhood of Electrical Workers, and the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada as well as other support craft as needed.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Water softeners are not currently operated at the NTS. Employee training may be necessary if water softening is required.

Section 8 - Training:

Operation and maintenance personnel qualifications are certified by the respective unions for the employees.

Section 9 - Vulnerabilities:

N/A

3. 8.3 Sewer

Latest Revision: 9/30/1996

Section 1 - Work Activity:

There are ten separate active sewage collection and treatment systems on the NTS. Biological treatment is accomplished by use of lagoons and disposal is achieved via evaporation and infiltration to the subsurface soils. Sewage received can be generated from domestic and industrial sources that can not contain hazardous waste nor adversely affect the operation of the treatment lagoons. There are also sixteen active septic tank and leach-field sites on the NTS which treat and dispose of sewage generated from individual facilities in remote locations.

The major activities associated with sewage collection and treatment at the NTS are categorized into the following eight areas:

- Operate sewage lagoons to attain proper treatment and disposal.
- Clean, inspect and repair the collection system on a regular basis to prevent blockages and possible surface discharges in any part of the sewage system, which includes permit required confined spaces.
- Maintain structural integrity and design of the lagoon embankments.
- Perform required monitoring and sampling.
- Prepare monitoring reports and correspondence on compliance issues.
- Evaluate proposed discharges of liquid wastes to the sewage collection systems.
- Obtain approvals for additions and modifications to the wastewater systems.
- Conduct investigations and propose construction projects to achieve compliance with regulations.

Section 2 - Hazards and Management Issues:

Hazards encountered in the operation and maintenance of sewage collection and treatment systems are similar to this industry and include: heavy equipment accidents when maintaining the structural integrity and design of the lagoon embankments; fire hazards associated with entry to explosive or flammable atmospheres in the confined spaces; electrical shock from working on energized equipment, such as pumps, lights, etc.; illness or fatalities when entering toxic atmospheres in confined spaces; and illness from water

3. 8.3 Sewer

Latest Revision: 9/30/1996

borne diseases, and handling toxicants and pollutants from the sewage system.

Management issues include development of acceptable solutions for compliance with environmental requirements. Solutions to attain environmental compliance must be feasible and cost effective for each site.

Section 3 – Standards:

The state statutes and regulations control discharges of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the ground waters of the state. The following standards are considered necessary and sufficient for sewage collection and treatment:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogens
<i>Note Requirements for the sanitation work.</i>	
29 CFR 1910.132	Personal Protective Equipment
<i>Note</i>	
29 CFR 1910.141, .146, .147, and .151	Sanitation; Permit - Required Confined Spaces; The Control of Hazardous Energy; Medical Service and First Aid
<i>Note Requirements for the sanitation work.</i>	
29 CFR 1926 Subpart O	Motor Vehicles, Mechanized Equipment, and Marine Operations
<i>Note 29 CFR 1910 and applicable part of Subparts O and W of 1926 for general hazards.</i>	
29 CFR 1926 Subpart W	Rollover Protection Structures; Overhead Protection
<i>Note 29 CFR 1910 and applicable part of Subparts O and W of 1926 for general hazards.</i>	
Nevada Administrative Code (NAC) 444.750 - 444.840	Sewage Disposal
<i>Note The state statutes and regulations control discharges of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.</i>	

3. 8.3 Sewer

Latest Revision: 9/30/1996

Nevada Administrative Code (NAC)

Water Pollution Controls

445A.070 - 445A.348

***Note** The state statutes and regulations control discharges of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.*

Nevada Revised Statutes (NRS)

Water Pollution Control

445.131 - 445.354

***Note** The state statutes and regulations control discharges of pollutants from sources to waters of the state or to any type of treatment facility. They apply to sewage collection and treatment facilities on the Nevada Test Site since facilities have a potential to discharge to the groundwaters of the state.*

Section 4 - Measurement Parameters:

Findings of Alleged Violations from the State Regulatory agency.

Compliance with the permits.

Section 5 - Implementation Considerations:

Implementation of these standards are needed to comply with the state of Nevada water pollution control laws and regulations. These laws and regulations require a permit for operation of sewage treatment facilities and reporting of changes to the sewage systems.

The state has issued general permit GNEV93001 to authorize the discharge of sewage into properly designed and maintained impoundments and requires regular sampling and monitoring of the 10 active facilities. It also requires operation in accordance to an approved Operation & Maintenance Manual and implementation of an acceptable method of groundwater protection at each active treatment site.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Standards require a Certified Grade 1 Wastewater Treatment Plant Operator to be in

3. 8.3 Sewer

Latest Revision: 9/30/1996

responsible and in charge of three existing treatment sites.

Section 9 - Vulnerabilities:

Failure to comply with the standards and operating permit requirements will result in state enforcement actions and fines.

3. 9 *Telecommunications*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Telecommunications services involve the following activities:

- Provide telephone services for DOE operations in Nevada and Amador Valley Operations for official government business which includes receiving and processing customer requests; tracking and billing charges to the customer; procuring and issuing cellular phones; processing requests with other vendors, e.g., AT&T; and planning/budgeting expansions and upgrades.
- Provide secure and unsecured communications support (i.e., narrative, data, facsimile, voice, and video) to DOE/NV and other clients at Nevada operations, which includes transmitting and receiving messages; providing secure telephone units; coordinating video conferencing; and Data Encryption Standard key loader support.
- Provide a fractional T1 (high speed communications) network for nation-wide, fractional T1 Metropolitan network, and an asynchronous transfer mode telecommunications infrastructure. The networks are monitored through on-line, real time software which reports alarms and troubles within the network for any of its links or nodes.

Section 2 - Hazards and Management Issues:

Hazards for this work activity are typical of general industry.

Management Issues:

- Replacement or upgrade components must meet the industry standards to ensure plug compatibility.
- Hazards associated with Secure Communications operations are loss of secure communications links which could result in a compromise of classified information.
- Federal telephone user fraud, misuse and abuse.

Section 3 – Standards:

The standards identified are those used by general industry and/or other federal agencies for this work activity. The Necessary and Sufficient standards are:

Standard	Title
29 CFR 1910.268	Telecommunications

3.9 Telecommunications

Latest Revision: 9/30/1996

Note Requirements for telecommunications work.

National Telecommunications and Information Administration (NTIA)	Manual Of Regulations And Procedures For Federal Radio Frequency Management
---	---

Note

Automated Digital Network (Autodin) Operating Procedures	Joint Army, Navy, and Air Force Publication
--	---

Note

General Services Administration (GSA) Federal Information Resources Management Regulation (FIRMR 101.35)	Applicable Standards
--	----------------------

Note Requirements for government and government contractors for telephone fraud, misuse and abuse. (See notes regarding FIRMR in WBS 1.4, Information Services)

Bell Telephone Standards	Maintenance, Installation and Operation
--------------------------	---

Note

Security Telecommunications and Information Systems Security Publications	Allied Communications Publications, Joint Army Navy Air Force Publication (Automated Digital Network (Autodin) Operating Procedures), and Department of Energy Publications
---	---

Note These are miscellaneous publications from the various agencies listed under the title of this standard.

Section 4 - Measurement Parameters:

- Cost of service.
- Video conferences setup schedule vs. number requested.
- Availability of T1 links.
- Mean Time Between Failures.
- Mean Time To Repair.

Section 5 - Implementation Considerations:

The standards cited above are currently in use with no impact.

3. 9 *Telecommunications*

Latest Revision: 9/30/1996

Because there are many manufacturers/vendors of comparable equipment, selected brand names and software systems are purchased to minimize the number of systems/interfaces which the network operations staff are required to know, operate and maintain.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Communications Center personnel are required to satisfactorily complete the COMSEC Distribution and Accounting workshop conducted by USDOE Headquarters every four years.

Section 9 - Vulnerabilities:

N/A

3.10.1 Materials Testing

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Materials Testing includes destructive and nondestructive testing of materials and equipment. This includes testing for physical, mechanical, hydrologic, chemical, thermal, etc., properties. Test materials include rock, soil, concrete, cements, grouts, steel, nuts, bolts, wire ropes, composite materials, foam, and cables. Testing includes field quality assurance tests for construction and soil and rock coring for foundation evaluations.

Nondestructive evaluations (NDE) and testing are conducted to identify discontinuities in materials without impairing the usefulness or longevity of the material. NDE tests include visual observations, magnetic particle methods, ultrasonic testing, liquid penetrant testing, x-ray evaluations, leak testing and dielectric testing. Dielectric testing is conducted on aerial boom trucks to verify the insulation resistance to ground.

Test work is conducted in the laboratory, construction locations, and underground. Test work is initiated by the NTS project managers, site services, and supports the construction department. The test and evaluation reports are sent to the work requesters and the tested samples will be disposed of as directed.

Section 2 - Hazards and Management Issues:

Hazards: materials testing operations involve equipment operations and chemicals and affect personal safety.

For test work, exposure to high winds and poor visibility conditions create a potential fall hazard while working on the elevated platforms and cranes.

Management Issues: If tests are not conducted per the national standards, the test results can not be repeated and errors can occur in the test data and results. Unreliable test data may effect the stability or quality of the item in which the tested materials were used.

Section 3 – Standards:

Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used:

Standard	Title
29 CFR 1910.1450	Occupational Exposure to Hazardous Chemicals in Laboratories
<hr/>	
<i>Note</i>	
49 CFR 106-177	Chapter I – Research and Special Programs

3.10.1 Materials Testing

Latest Revision: 9/30/1996

Administration Department: Subchapter A
– Hazardous Materials Transportation, Oil
Transportation, and Pipeline Safety

Note *Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: U.S. Department of Transportation (DOT) 49 CFR 106 through 177 regulations for radiation equipment transportation and safety related testing.*

American National Standards Institute (ANSI)	Applicable Standards
--	----------------------

Note *Management issues are mitigated using national standards or special procedures identified by the client.*

American Petroleum Institute (API)	Applicable Standards
------------------------------------	----------------------

Note *Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: American Petroleum Institute (API) procedures for the drilling mud materials physical properties testing and also rock testing.*

American Society for Testing and Materials (ASTM)	Applicable Standards
---	----------------------

Note *Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: American Society for Testing and Materials (ASTM) procedures and specifications are for test work such as concrete, soil, aggregate, rocks, steel, nuts, bolts, etc.*

American Society of Mechanical Engineers (ASME)	Applicable Standards
---	----------------------

Note *Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: American Society of Mechanical Engineers (ASME) standards for material specifications and acceptance standards for physical properties and NDE.*

American Welding Society (AWS)	Applicable Standards
--------------------------------	----------------------

Note *Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: American Welding Society (AWS) standards*

3.10.1 Materials Testing

Latest Revision: 9/30/1996

for sample preparations, testing and NDE activities

Society of Automotive Engineers (SAE) Applicable Standards

***Note** Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: Society of Automotive Engineers (SAE) standards for testing and specifications of fasteners and product test procedures.*

Nevada Department of Transportation Materials Manual of Testing Procedures
(NDOT)

***Note** Management issues are mitigated using national standards or special procedures identified by the client. In the absence of client specified standards, the following standards are used: Applicable Nevada Highway test standards and procedures for testing road construction projects.*

Section 4 - Measurement Parameters:

- Test data quality.
- Test reports delivery on schedule.
- Cost per test.

Section 5 - Implementation Considerations:

The necessary and sufficient standards are currently in use. There will be no cost to implement.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Personnel are trained by the test equipment manufacturers for safe operations. materials testing personnel are also trained and certified per the American Concrete Institute and American Society for Nondestructive Testing.

Section 9 - Vulnerabilities:

3.10.1 *Materials Testing*

Latest Revision: 9/30/1996

N/A

3.10.2 Scientific Services

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Scientific services are provided to DOE contractors at the NTS; Las Vegas, Nevada; Amador Valley Operations and Special Technology Laboratory, California; Los Alamos Operations, New Mexico; and Washington Aerial Measurements Operations, Andrews AFB, Maryland. Work is initiated by customer request and performed in the laboratory and the field with some work underground as required. Field work requires transporting measuring and characterization equipment to the experiment locations.

Services include:

- Standards and Calibration
- Transducer Calibration and Characterizations
- Fabrication of fiber arrays and hybrid electronic circuits
- Installation of fiber systems
- Operation of optical measuring devices and lasers
- Production, calibration, and design of electro-optic devices, radiation detectors, and diagnostic recording systems for field events
- Electronic and optical technologies for reading and analyzing data from event film
- Characterization of optical modulators

Work will be performed to customer requirements. If none are specified, the default standards will be drawn from this list which represents common industrial practice.

Section 2 - Hazards and Management Issues:

Hazards:

The hazards to employees and the environment are similar to commercial industries performing like-work, such as low voltages and low intensity radiation associated with testing equipment and lasers.

Management Issues:

3.10.2 Scientific Services

Latest Revision: 9/30/1996

There is a risk of losing data during tests or experiments where there is only one opportunity to record the results.

Section 3 – Standards:

Work will be performed to customer requirements. If none are specified, the default standards will be drawn from the following list which represents common industrial practice:

Standard	Title
American National Standards Institute (ANSI)	Applicable Standards
<i>Note ANSI Standards for product specifications, acceptance criterion, laser safety requirements, laser utilization guidelines, radiation measurements, and calibration of radiation sources and instruments.</i>	
American National Standards Institute (ANSI) Z136.1	Safe Use of Lasers
<i>Note</i>	
American Society for Testing and Materials (ASTM)	Applicable Standards
<i>Note American Society for Testing and Materials (ASTM) procedures and specifications used in test work such as steel nuts, bolts, etc., test, and radiation measurements.</i>	
American Society of Mechanical Engineers (ASME)	Applicable Standards
<i>Note American Society of Mechanical Engineers (ASME) standards used for material specifications and acceptance standards for physical properties.</i>	
Institute of Electrical and Electronic Engineers (IEEE)	Applicable Standards
<i>Note Institute of Electrical and Electronic Engineers (IEEE), applicable portions used for design, testing, qualifications, and interface requirements.</i>	
Society of Automotive Engineers (SAE)	Applicable Standards
<i>Note Society of Automotive Engineers (SAE) standards used in testing and specifications of fasteners and product test procedures.</i>	

Section 4 - Measurement Parameters:

3.10.2 Scientific Services

Latest Revision: 9/30/1996

- Test data quality.
- Test report delivery time.
- Test Cost.

Section 5 - Implementation Considerations:

The standards are in use with no impact.

Adherence to national standards and commercial industry practices is assured by monitoring laboratory activities and inspecting vendor supplied products.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Under the weapons program, the Sandia Primary Standards Laboratory in Albuquerque, NM, calibrates most of the measuring and test equipment standards for the Calibration Laboratory at no cost. This service may no longer be provided if the DOE Albuquerque directives are discontinued and could result in added costs.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

3.10.3 Photo-Video

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The work activity is divided into three categories; image acquisition, image processing and image distribution. These activities are the same for both the photographic and video processes.

Image Acquisition

This activity involves the use of video or photographic equipment to capture either moving or still images. Specifically, the activities are:

- Video image acquisition
- Aerial image acquisition (photographic and video)
- Still photography acquisition
- Electronic (digital) photography acquisition
- Scientific instrument image data acquisition
- Customer defined image acquisition
- Created image acquisition

Image Processing

Once an image is acquired, it is processed into a final product which is delivered to the customer and/or archived for later use. Processing includes:

- Video editing
- Video duplication
- Chemical film processing (photographic film and paper)
- Computer enhancement and manipulation (electronic scanning and printing)

Image Distribution

The completed products are delivered to customers and/or archived for later use. Distribution includes:

3.10.3 Photo-Video

Latest Revision: 9/30/1996

- Customer viewing
- Packing and shipping of materials to customers
- Hand delivery of materials to customers
- Customer pickup of materials
- Electronic distribution of materials (computer networks)
- Long-term archiving and storage of finished products and original image acquisition materials.

Section 2 - Hazards and Management Issues:

The hazards are typical of dark rooms, such as handling of photographic chemicals, fumes, slips, trips, and falls.

There are no exceptional hazards that are not covered under current OSHA or industry standards.

Management Issues:

If images are not acquired or images are of substandard quality, or not processed in accordance with internal or industry standards, and within customer requirements, the customer may be dissatisfied with the final product. This may result in a negative impression or perception of the company. There may also be a negative financial impact if images need to be reacquired, reprocessed and/or redistributed to satisfy customer requirements.

Section 3 – Standards:

Gathering, processing and distributing images is considered a creative endeavor as well as a technical one. There are no specific standards for creativity in the industry. Formal education and experience comprise a "skill of the craft" standard. Technically, industry standards are applicable and commonly used. Work activity and production standards are determined by internal standards, customer defined requirements, Federal OSHA requirements and local government regulations. In addition, this work activity will also be governed by other applicable program requirements developed through other WBS elements.

3.10.3 Photo-Video

Latest Revision: 9/30/1996

General industry standards applied include:

Standard	Title
----------	-------

29 CFR 1910.1200	Hazard Communication
------------------	----------------------

Note

United States Geological Survey (USGS)	Camera Lens Standards For Aerial Vertical Photography Used For Aerial Mapping Purposes
--	--

Note Gathering, processing and distributing images is considered a creative endeavor as well as a technical one. There are no specific standards for creativity in the industry. Formal education and experience comprise a "skill of the craft" standard. Technically, industry standards are applicable and commonly used. Work activity and production standards are determined by internal standards, customer defined requirements, Federal OSHA requirements and local government regulations. In addition, this work activity will also be governed by other applicable program requirements developed through other WBS elements.

Section 4 - Measurement Parameters:

Recommended measurement parameters are:

- Product delivery time as determined by the customer.
- Completion of work achieved in accordance with estimated budget.
- Customer feedback.

Section 5 - Implementation Considerations:

The industry and governmental standards cited in Section 3.0 are already followed. All products produced will be in accordance with industry guidelines for technical quality. This will help ensure the avoidance of management issues that could have a negative impact. There is no impact for implementation.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

3.10.3 Photo-Video

Latest Revision: 9/30/1996

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

3.10.4 Radiochemical

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Radiochemical service activities are performed at the NTS for "onsite" and "off-site governmental" clients who require quality radiochemical analyses. The activities performed and processes utilized parallel those found in the commercial radiochemical service industry with the exception of the capability to perform classified work.

Radiochemical services consist of three components: sample management, laboratory operations, and office/clerical support described in the following:

Sample Management: These activities include assisting clients in establishing data quality objectives (DQOs); developing data quality plans; developing sampling and analysis plans (S&AP) and statements of work (SOWs); receiving and tracking samples with the laboratory information management system ; initiating, maintaining, and assuring rigorous sample chain-of-custody; verifying laboratory deliverables against client SOWs; preparing legally defensible data reports and statements of service for billing purposes, billing laboratory work, and maintaining the laboratory billing system; serving as liaison between clients and laboratory production personnel; assisting in the acquisition, qualification, and surveillance of subcontract laboratories; preparing samples for shipment to subcontract laboratories and verifying subcontract laboratory data reports for clients; preparing analyzed samples and their residuals for disposal; archiving client data as required; and providing radiological, RCRA, CERCLA, and waste characterization sampling services.

Laboratory Operations: These activities include sample preparation, chemistry, and radio-counting. Ancillary to these activities is laboratory supply and material acquisition; equipment calibration, maintenance, and repair; process quality control; and implementation and oversight of the laboratory personnel health and safety program.

Office/clerical support: These activities are those associated with the operation of a commercial radiochemical production laboratory.

Section 2 - Hazards and Management Issues:

Sample Management: Except for sampling, these activities are predominantly performed in an office environment and consequently are only associated with those hazards which are usual and customary to an office environment. Occasionally, personnel performing sample management services must enter the laboratory and are exposed to those hazards attendant to a chemistry and radiocounting laboratory.

Laboratory Operations: These activities are performed in the laboratory or appropriate

3.10.4 Radiochemical

Latest Revision: 9/30/1996

counting room consequently personnel are exposed to those hazards usual and customary to a chemistry and radiocounting laboratory.

Office/clerical support: These activities are associated with those hazards usually and customarily found in an office.

Management issues involve: 1) assuring the comparability of Commercial Sector/Analytical Services service rates; 2) providing a laboratory QA/QC program specifically meeting the requirements set out in customer SOW's, consistent with the company wide program; and 3) meeting the site wide requirements set out in other WBS elements.

Section 3 – Standards:

Process standards for radioanalytical laboratories are performance based and established by client requirements and/or best commercial laboratory practices. Because client needs are driven by environmental law, the "Industry Standard" has become the combination of best laboratory practices (which is a collection of industry standards, laboratory practices standard methods, and quality standards gleaned from organizations such as the American Chemical Society and its affiliates, the Health Physics Society, the National Institutes of Standards and Technology, the American Nuclear Society, and the American Society for Testing and Materials) coupled with the requirements set forth in the following:

Standard	Title
10 CFR 835	Radiation Protection for Occupational Workers
<i>Note 10 CFR 835, "Radiation Protection for Occupational Workers" establishes requirements for detection limits for the bioassay program.</i>	
29 CFR 1910.1450	Occupational Exposure to Hazardous Chemicals in Laboratories
<i>Note Required for safe laboratory operations.</i>	
40 CFR 261.4 (d)	Exclusions, d, "Solid Wastes which are not Hazardous Waste"
<i>Note Important to sample management is the hazardous waste exemption for laboratory samples, stated in 40 CFR 261.4, which are collected for the sole purpose of testing for characteristics or components are not subject to any of the requirements of 40 CFR 262 through 268 as long as the: sample is being transported to a laboratory for testing, sample is being transported back after testing sample is being stored before transport to a laboratory, sample is being</i>	

3.10.4 Radiochemical

Latest Revision: 9/30/1996

stored in a laboratory before testing, sample is being stored after testing but before it is returned, and sample is being stored temporarily in a laboratory for a specific purpose. The exception to this exemption is, once the laboratory determines the characteristics or components and labels the sample hazardous, the laboratory is no longer in the testing phase and has to treat the sample as a hazardous waste.

40 CFR 61 Subpart H	National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities
---------------------	--

***Note** Applicable sections of 40 CFR Subpart H, "National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities" establish the laboratory QA/QC program.*

Performance Objective for the Certification of Non-Radioactive Mixed Waste, DOE Office of Environmental Management (EM-30)	Performance Objective for the Certification of Non-Radioactive Mixed Waste
--	--

Note

EPA Environmental Monitoring System Laboratory Intercomparison Standards Program, or Equivalent	EPA Environmental Monitoring System Laboratory Intercomparison Standards Program, or Equivalent
---	---

Note

Nevada Administrative Code (NAC) 444.850 - 444.8746	Disposal of Hazardous Waste
---	-----------------------------

***Note** This includes the exemption provided by 40 CFR 261.4(d).*

Nevada Revised Statutes (NRS) 459.400 - 459.600	Disposal of Hazardous Waste
---	-----------------------------

***Note** This includes the exemption provided by 40 CFR 261.4(d).*

Section 4 - Measurement Parameters:

- Maintaining service rates comparable with commercial services.
 - Turnaround/hold times.
 - Meeting client SOW requirements.
 - Year end recharge credits versus annual recharge credit forecasts.
-

3.10.4 Radiochemical

Latest Revision: 9/30/1996

- Performance Evaluation Samples score.

Section 5 - Implementation Considerations:

Because the work is currently operating to the above governing standards, no significant changes or impacts are expected and implementation will be immediate.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

10 CFR 834, "Radiation Protection of the Public and the Environment" is about to be promulgated. It establishes QA/QC criteria which must be met by laboratories analyzing environmental samples. Minor programmatic adjustments may be necessary.

ANSI N 13.30, "Performance Criteria for Bioassay" is about to be issued as is the companion to DOE Standard, "Handbook for the Department of Energy Laboratory Accreditation Program for Radiobioassay Programs". Implementation of these two standards will require modest programmatic changes, but overall will have little effect on the program.

Section 8 - Training:

The specific training requirements set out in the Standards cited in 3.0, above, are met through formal educational training, OJT, and a "Bench-Top Training" program.

Section 9 - Vulnerabilities:

As a "recharge" funded activity, obtaining capital equipment for replacement of failed equipment is an ambiguous process at best since the DP mission has been curtailed and "environmental" moneys do not appear to be available for capital acquisitions which are not related specifically to a project.

In addition, rules against using "operations" moneys for capital acquisitions (even if it were possible to raise recharge rates high enough to amortize capital acquisitions) also preclude capital procurements.

Ten percent (10 %) of the equipment is expected to be obsolete or to fail annually. Without replacements, continued operations are at risk.

3.11 Custodial Services

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Custodial services are provided for the DOE/Nevada operations. Custodial services are provided by the host facility at the remote sites. This work activity only includes work at the NTS. Custodial services are also provided for tours, special projects, and Yucca Mountain Project offices. Custodial service activities for the Nevada locations are similar to commercial custodial services and include management and planning for custodial services and subcontractor oversight which requires constant review of management practices. Success rests in the ability to apply modern techniques to technical and management problems.

The types of facilities serviced at the NTS are offices, laboratories, medical facilities, warehouses, workshops, interior public areas, and front of the house dining commons. The types of services available are vacuuming, sweeping, mopping, stripping and waxing floors, shampooing, buffing, cleaning toilets and fixtures, window cleaning, dusting, washing walls, emptying waste baskets, sanitizing and hantavirus cleanup.

Section 2 - Hazards and Management Issues:

Hazards to custodial services personnel include blood borne pathogens, hazardous chemicals, lifting, slip-trip-fall, etc. A potential for exposure to Hantavirus exists at the NTS.

Section 3 – Standards:

Risks to workers of the work activity can be mitigated by complying with:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogens
<i>Note Requirements for mitigation of blood borne pathogens (as implemented through WBS 4.2.2, Industrial Hygiene).</i>	
29 CFR 1910.132	Personal Protective Equipment
<i>Note</i>	
Center for Disease Control and Prevention (CDC)	Hantavirus Infection - Southwestern United States: Interim Recommendation for Risk Reduction
<i>Note CDC's, "Hantavirus Infection - Southwestern United States: Interim Recommendation for Risk Reduction" (as implemented in WBS 4.2.2).</i>	

Section 4 - Measurement Parameters:

3.11 Custodial Services

Latest Revision: 9/30/1996

- Amount of Square Feet Cleaned per Custodial Service Full Time Equivalent (FTE).
- Number of Performance Based Safety Process (PBSP) observations compared to the injuries/illnesses.
- Customer satisfaction surveys.

Section 5 - Implementation Considerations:

The principal hazard in custodial services is the potential improper application or use of cleaning compounds. Custodial service safety is maintained through the continual reiteration of safe work methods, proper application and use of cleaning compounds. The adoption of the PBSP provides for a peer oversight method which focuses on safe work methods and foreseeing unsafe work situations. The staff is trained and certified in the fundamentals of the PBSP.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

Training and certification of Custodial Services managers and employees in the PBSP principals is required to ensure a high quality of protection of the custodial customers and staff.

Section 9 - Vulnerabilities:

N/A

3.12 Explosives Storage

Latest Revision: 8/22/2002

Section 1 - Work Activity:

Explosive storage magazines are made available to NTS users, e.g., National Laboratories, Department of Defense, and other groups. All magazines are assigned to the user through a facility use permit program. This work activity is for operations, storage, and inventory:

- Operations includes off loading and loading of explosives.
- Storage includes the storing of explosives.
- Inventory includes the monitoring and inventory of explosives.

Section 2 - Hazards and Management Issues:

HAZARDS:

If the contents were to explode, the hazards associated with the detonation are blast pressure, primary and secondary fragments, and thermal and chemical effects. These hazards are the same as those in the commercial explosives industry.

MANAGEMENT ISSUES:

Industry has found explosives storage magazines to be a target for break-in. Due to the high liability factor and negative publicity, management issues relate to the security and physical protection of explosive magazines.

Section 3 – Standards:

The necessary and sufficient standards are:

Standard	Title
29 CFR 1910.109	Explosives And Blasting Agents For General Work
<i>Note 29 CFR 1910.109, Explosives And Blasting Agents For General Work - except for 1910.109 (d) (1) (iv) which prohibits transportation of blasting caps and explosives over the highway on the same vehicle.</i>	
29 CFR 1926 Subpart U	Blasting and Use of Explosives
<i>Note Applicable parts of 29 CFR 1926, Subpart U, Blasting And Use Of Explosives, for construction work - except for 1926.902(d) which prohibits transportation of blasting caps and explosives on the same vehicle.</i>	
DOE M 440.1-1	DOE Explosives Safety Manual
<i>Note Added by BCR 2002-022.</i>	
<i>Chapter 2, paragraph 17, Explosives Storage only.</i>	

3.12 *Explosives Storage*

Latest Revision: 8/22/2002

Section 4 - Measurement Parameters:

- Accurate inventory accountability.
- Adequate physical protection of explosives.

Section 5 - Implementation Considerations:

These standards are currently in use for active explosive magazines at the Nevada Test Site. There are no implementation costs.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

4.1.1 Fire Protection: Emergency Response

Latest Revision: 12/9/2002

Section 1 - Work Activity:

Fire Protection/Emergency Response to the Nevada Test Site (NTS) and Yucca Mountain Project is provided 24 hours, seven days per week by Fire Station No. 1 in Mercury, Nevada, and Fire Station No. 2 in Area 6. Responders also deploy to wildland fires adjacent to the NTS and vehicle fires and accidents on U.S. Highway 95 and other areas within Nye and Clark Counties as requested by civilian authorities and community emergency service providers through formal Memoranda of Agreement (MOA) and Memoranda of Understanding (MOU). Local fire department resources cover non NTS U. S. Department of Energy, National Nuclear Security Administration Nevada Operations Office (NNSA/NV) sites.

Fire Protection/Emergency Response consists of the following:

Firefighting. This is the control, confinement, extinguishment, salvage, and overhaul of fires in structures, vehicles, and wildland fire incidents.

Hazardous Materials Response. Responders provide technician level mitigation.

Aircraft Rescue and Firefighting. This activity includes control, confinement, and extinguishment of aircraft fires on the NTS as well as rescue of personnel on board. This capability is mandatory for Federal Aviation Administration (FAA)-certified airfields.

Aircraft Standby Support. Responders provide standby support as requested during aircraft refueling operations, landings, and takeoffs at airstrips on the NTS.

Fire Watch. Responders perform fire watch duties after normal duty hours on the NTS in the event facility detection and suppression systems fail. Fire and Rescue (F&R) personnel may provide a fire watch during the recovery phases of wildland fires and recovery operations. Note: Fire watch activities do not include operational/hot work-related events.

Incident Command. Responders provide a formal incident command structure for all emergency incidents.

Search and Rescue. Responders remove victims from structures, vehicles, confined spaces and other hazardous environments.

Communication Information Center (CIC) Operations. CIC Operators, firefighters, and

4.1.1 Fire Protection: Emergency Response

Latest Revision: 12/9/2002

paramedics provide the following services in Mercury, Nevada:

- Monitor fire detection systems for facilities on the NTS.
- Monitor and provide communication assistance for all NNSA/NV user radio frequencies.
- Receive local 911 and radio Mayday emergency requests.
- Dispatch appropriate emergency responders to incident scenes (fire, EMS, law enforcement).
- Monitor emergency responder radio traffic and serve as interface.
- Perform emergency notification/recall to the NTS Emergency Response Organization.
- Monitor NTS Hazardous Material Tracking System (HAZTRAK).
- Serve as backup for HAZTRAK Emergency Response Information telephone point-of-contact for outbound NNSA/NV hazardous material shipments (WSS 3.6). The BN Duty Managers Office is has primary point-of-contact responsibility for this service.
- Monitor air-to-ground radio frequencies for NNSA/NV.
- Receive reports of communication systems failures and notifies appropriate personnel.

In-house Training Program. Continuing education is provided to staff firefighters and paramedics by in-house State of Nevada certified fire service instructors.

Section 2 - Hazards and Management Issues:

Hazards

The hazards which may be encountered by NTS firefighters include slips, trips, falls, over exertion, exposure to fire, fire products, hazardous materials, radiation, and blood borne pathogens. Additionally, various mechanical hazards may be encountered during use of rescue and firefighting tools and equipment.

Incident commanders and firefighters have several sources of information available for use during emergencies where unknown hazards may be present (chemical, radiological, biological). These include, but are not limited to, NTS-specific emergency management hazards assessments, emergency management hazards surveys, pre-fire plans, HAZTRAK and the emergency response guidebook. In addition, the application of requirements cited in the standards section of this Work Smart Standard provides additional methods for approaching hazardous situations.

Firefighters wear personal protective equipment (PPE) appropriate for the hazard to mitigate the above exposure effects. Firefighters performing fire extinguisher maintenance duties may be exposed to elevated noise levels and hazards associated with service equipment and compressed gas cylinders. These hazards are mitigated through appropriate PPE and job task specific training for extinguisher maintenance operations. Additionally,

4.1.1 Fire Protection: Emergency Response

Latest Revision: 12/9/2002

firefighters participate in a mandatory physical fitness program designed to improve their ability to withstand heavy exertion during emergency operations.

Management Issues

With the remote industrial setting of the NTS, failure to maintain qualifications, certifications, and licenses of firefighters and paramedics in accordance with the cited standards in Section 3, could result in loss of life, increased property and environmental damage, and negative publicity for NNSA/NV.

Section 3 – Standards:

The standards listed below are the minimum requirements to ensure 1) the safety and health of persons involved in emergency response activities, 2) the protection of other workers and the public by having qualified and properly equipped response personnel available in the event of emergencies, and 3) the protection of the environment in the event of hazardous material spills. Specifically, the following standards apply to NTS emergency response:

Standard	Title
14 CFR 139.325	Airport Emergency Plan
<i>Note This requirement shall only apply to operational and FAA certified airports.</i>	
29 CFR 1910.120(q)	Hazardous Waste Operations and Emergency Response
<i>Note Paragraph (q) describes activities for first responders.</i>	
29 CFR 1910.134	Respiratory Protection
<i>Note</i>	
29 CFR 1926.65(q)	Hazardous Waste Operations and Emergency Response
<i>Note Paragraph (q) describes activities for first responders.</i>	
Current, National Fire Codes (NFC)	National Fire Protection Association (NFPA)
<i>Note Added by BCR 2002-031.</i>	
<i>Applicable NFC Codes and Standards are those which apply to fire department operations. The NTS Fire Chief monitors work assignments to verify the correct use of NFC requirements. As standards change, they will be reviewed for F&R operations.</i>	
DOE G 440.1-5, Fire Safety, Guide	Fire Department Operations

4.1.1 Fire Protection: Emergency Response

Latest Revision: 12/9/2002

9/30/95, EH

Note Added by BCR 2002-031.

Only Section 6, Fire Department Operations, is applicable.

DOE O 420.1, Facility Safety, Section 4.2 Fire Protection

Note Added by BCR 2002-031.

Only items relating to Fire & Rescue equipment, response, and training are applicable. Section 4.3.3.(k), Guidelines for Firefighting is incorporated by reference to 4.2.1.

Section 4 - Measurement Parameters:

The NTS F&R Baseline Operational Needs Assessment is the tool used for measuring emergency response capabilities of the NTS.

Additional benchmarks for measuring emergency response capabilities include:

- Actual training conducted versus planned (required) training. In addition to routinely required training, having conducted specialized nuclear and non-nuclear hazardous facility training.
- Equipment tests and certifications completed on time.
- Proficiency achieved on simulated emergencies in the following operational arenas:
 - Hazardous material incidents (including radiological emergencies)
 - Multiple victim incidents
 - Structural firefighting with victim rescue
 - Vehicle extrication
 - Confined space rescue
 - Utilization of the incident command system
 - Aircraft rescue and firefighting*
 - Wildland firefighting techniques

*Applicable if NTS F&R is required to meet response standards for FAA certified airports.

Section 5 - Implementation Considerations:

The base service fire protection response element is currently implemented; however, in the event expansion of this element is required, firefighter recruitment, relevant certification reciprocity, and site specific training requirements may affect ability to fully staff and

4.1.1 Fire Protection: Emergency Response

Latest Revision: 12/9/2002

operate additional station locations in a timely manner. Significant increase in overtime levels may be required to operate new stations until recruitment process is completed, equipment, and apparatus is acquired, and facilities are made ready.

Compliance with certain NFC requirements relative to station design is dependent upon facility modifications or new structures to meet the intent of applicable NFC standards (i.e., NFPA 1500, NFPA 1221).

Implementation of new or modified requirements will follow an implementation schedule identified by the BN Nuclear Operations Implementation Plan, NOIP-04-2002.

Section 6 - Work Environment:

Firefighters and paramedics interact with workers and other members of the NTS Emergency Response Organization in various settings. These settings include a typical office environment and emergency scenes in varied weather conditions. Working conditions during emergency activities are diverse and potentially hostile, requiring the utmost attention to safety. Firefighters and paramedics may also interact with response professionals from surrounding communities through current MOAs and MOUs during routine emergencies and large-scale disasters.

Section 7 - Uncertainties or Issues:

Fire protection emergency response services described in this document are considered base level. Providing support above those indicated would require additional funding sources for the additional personnel, stations, equipment, or overtime assignments.

Section 8 - Training:

Firefighters and paramedics receive continuing education in accordance with the Federal, State, local requirements specified within the standards referenced in Section 3 of this document.

Emergency Medical Technician training is covered in WBS 4.1.3, Emergency Medical Services.

Section 9 - Vulnerabilities:

Failure to comply with Federal, State, local, or site-specific requirements may result in a reduction of delivered emergency services to the NTS, fines, company liability, and negative publicity for NNSA/NV.

4.1.2 Fire Protection: Fire Prevention Activities

Latest Revision: 7/30/2002

Section 1 - Work Activity:

The fire protection and prevention work activity includes the following:

1. Conducting facility fire inspections and entering inspection data in the computer,
2. Conducting visual inspections of installed fire detection, alarm and suppression systems.
3. Conducting fire investigations, maintaining a current fire protection reference library.
4. Preparing and reviewing facility prefire plans,
5. Providing fire extinguisher and life safety education presentations and demonstrations.
6. Delivering and removing Digital Alarm Radio Transmitting Stations (DARTS) and portable Fire-Pac/Alarm Stations units,
7. Serving in standby situations for confined space entry and hot work, and testing firefighting equipment.
8. Inspecting and performing maintenance and service on approximately 5,000 fire extinguishers throughout the NTS, YMP and Las Vegas facilities. Mandatory maintenance includes annual/6-year breakdown and 5 or 12 year hydrostatic testing of each extinguisher cylinder.
9. Performance of documented reviews of plans, specifications, procedures, and acceptance testing by a qualified fire protection engineer.
10. Development and implementation of the Fire Protection/Prevention Policy, indicating management commitment and support of Fire Protection Support capability sufficient to minimize loss from fire related hazards.
11. Establishment of fire protection and prevention plans in support of management policies.
12. Establishment and implementation of a comprehensive fire protection self-assessment program. [Deficiency tracking and closeout is covered under WBS 4.7, Quality Programs.]
13. Implementation of a process for reviewing and recommending approval of fire safety equivalencies or exemptions.

Issues related to the design, installation, detailed inspection, testing and maintenance of fire protection systems (i.e., remote DARTs, Fire-Pacs, alarm stations, and fire detection and suppression systems) are addressed under other Work Breakdown Structures, e.g. 2.7.1, Design Engineering, 3.4, Facility Maintenance, 2.8, Construction, 4.7, Quality Program.

Fire protection and prevention activities at other DOE/NV-managed locations at the Nellis Air Force Base, Nevada; Los Alamos, New Mexico; Goleta and San Francisco, California; and Andrews Air Force Base, Maryland; are covered by local and host fire departments or other jurisdictions.

4.1.2 Fire Protection: Fire Prevention Activities

Latest Revision: 7/30/2002

Section 2 - Hazards and Management Issues:

The physical hazards to firefighters performing inspections, testing, and standby activities are not unique or unusual to these types of activities. However, due to the downsizing efforts, many of the inspections, tests, pre-fire plans and updates, requested fire extinguisher presentations and demonstrations, and requested standby activities may not meet schedules. For instance, at this time all extinguisher maintenance requirements in the time frame specified by regulations. Also, the equipment used for hydrostatic testing of cylinders is outdated and very inefficient.

Section 3 – Standards:

The Necessary and Sufficient set of standards applicable to this work activity is as follows:

Standard	Title
DOE O 420.1, Section 4.2, Subsection 4.2.1	Facility Safety, Fire Protection, General Programmatic Requirements

Note DOE O 420.1 Added by BCR 99-009.

The following sections provide the needed framework and mitigating measures:

Section 4.2.1.1 – Modified to read “A policy statement that incorporates the requirements of other applicable Federal, state, and local fire protection requirements. The statement shall affirm management's commitment to support a level of fire protection and fire suppression capability sufficient to minimize losses from fire and related hazards consistent with the best class of protected property in private industry.”

Section 4.2.1.4 – Limited to “This includes documented reviews of plans, specifications, procedures, and acceptance testing by a qualified fire protection engineer.”

Section 4.2.1.5 – Limited to “The FHA shall be developed using a graded approach.”

Section 4.2.1.7 – A "baseline" needs assessment that establishes the minimum required capabilities of site fire fighting forces. This includes minimum staffing, apparatus, facilities, equipment, training, fire pre-plans, off-site assistance requirements, and procedures. Information from this assessment shall be incorporated into the site Emergency Plan.

Section 4.3.1.9 – Last sentence modified to read “Contractor to determine self-assessment frequency based on risk. “

Section 4.3.1.11 – A process for reviewing and recommending approval of fire

4.1.2 Fire Protection: Fire Prevention Activities

Latest Revision: 7/30/2002

safety "equivalencies" and "exemptions" to the DOE Authority Having Jurisdiction for fire safety.

The sections of DOE 420.1, not adopted, were determined to be adequately addressed or implemented through the existing standards in WSS 4.1.2, Fire Protection: Fire Prevention, or in other existing WSS Work Activities.

Nevada Administrative Code (NAC) 477 State Fire Marshall

Note *Nevada Administrative Code (NAC) Chapter 477, Nevada State Fire Marshal Regulations, and the Uniform Fire Code, Uniform Building Code, and NFPA Codes which are incorporated by reference, with the following considerations: 1) portions of the NAC detailing responsibilities and authorities of the state fire marshal are pertinent only to the North Las Vegas and Las Vegas, Nevada, facilities as the state fire marshal is the Authority Having Jurisdiction for these facilities. This is due to the fact that local fire departments would respond to emergencies at these facilities. 2) For NTS facilities, the Authority Having Jurisdiction is the DOE/NV manager or designee. The requirements for certain state examinations, tests, licenses, etc., and other authorities and responsibilities of the state fire marshal will not apply to NTS operations.*

Section 4 - Measurement Parameters:

- Low incident fire rate due to the effectiveness of the program.
- Reduction in fire prevention deficiencies.

Section 5 - Implementation Considerations:

The following publication will be used as an implementing guide for the "best management practice" of pre-incident planning for structures:

- NFPA 1420, Recommended Practice for Pre-Incident Planning for Warehouse Occupancies.

In order to meet the requirements of NAC 477, the fire protection technician supervisor will need to be licensed by the State of Nevada to maintain fire extinguishers.

In order to meet the requirements of the standards referenced herein, appropriate resources must be committed. In order to establish and implement a comprehensive fire protection program self-assessment program, a Fire Safety Review Board will need to be established.

4.1.2 *Fire Protection: Fire Prevention Activities*

Latest Revision: 7/30/2002

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

None

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

The downsizing of FPS personnel who perform fire protection/fire prevention activities is considered a vulnerability at this point since there are no standards or regulations that require a specific number of employees to do these jobs.

At some point in the future, halon will not be able to be used as an extinguishing agent. Replacement agents will need to be found to replace the halon in fixed extinguishing system and in portable fire extinguishers. The disposal of the halon presently in stock and in extinguishers will require disposal at an unknown expense.

4.1.3 *Emergency Medical Services*

Latest Revision: 7/30/2002

Section 1 - Work Activity:

Emergency Medical Services provides state-of-the-art, paramedic level care to employees and visitors of the Nevada Test Site. The basic service is provided 24 hours, 365 days per year at Mercury, Nevada. Paramedic crews also respond to emergencies on U.S. Highway 95, and other areas within Nye and Clark Counties as requested by civilian authorities and community emergency service providers.

The paramedics and ambulances are certified with the State of Nevada to operate at the advanced level (paramedic) for treatment and transport of the ill or injured.

The Emergency Medical Services (EMS) consists of the following activities:

Emergency response:

Paramedics respond to emergency situations in Department of Transportation and State of Nevada approved ambulances. Paramedics apply advanced level treatment techniques to occupational and non-occupational injuries and illnesses by utilizing approved medical protocols. Paramedic crews also provide standby support for special operations projects on an as needed basis. A select team of paramedics is assigned to Department of Energy national Response Teams for medical support during actual deployments and training exercises. Paramedics are an integral part of fire suppression response activities and provide rehabilitation services to firefighters. Paramedics are also haz-mat technician level trained and provide full support (medical treatment, medical evaluation, and incident mitigation) during hazardous material incidents.

EMS maintains a multiple victim incident response capability by deployment of a special purpose vehicle/trailer. The special truck and trailer provide a capability to treat 30-50 patients at the accident/incident scene without expending ambulance supply inventories. Additionally, the trailer is equipped with numerous radio frequencies in the command section to provide command and coordination capabilities as a back-up incident command post.

Routine Clinical Care:

Paramedics provide routine clinical care and processing at the NTS. This includes treatment, documentation responsibilities, and routine drug screen collection (drug screens collected in Mercury at the medical clinic only).

In-House Paramedic Training Program:

EMS is responsible for maintaining an in-house continuing education program for staff

4.1.3 *Emergency Medical Services*

Latest Revision: 7/30/2002

paramedics and Firefighter EMTs. The paramedics and EMTs receive documented training in accordance with State of Nevada regulations by certified Nevada EMS Instructors.

Quality Improvement:

Each ambulance run report is reviewed by the Platoon EMS Instructor for correctness of treatment protocols, documentation, and timely response. Suspect or outstanding reports are forwarded to the EMS Service Director and Medical Director for review and section. Routine meetings are held (at least quarterly) with the Medical Director for review of all ambulance run reports, protocol discussions, and current EMS trends.

Section 2 - Hazards and Management Issues:

EMS Personnel are potentially exposed to hazards such as chemicals, radiation, medical wastes, and biohazards. Due to hazard exposure during activities, EMS personnel wear personal protective equipment and practice universal precaution procedures.

Management issues associated with the EMS include understanding the roles and responsibilities of EMS and other health care professionals not associated with the Emergency Services Department, Fire Protection & Emergency Medical Services Section. The importance of maintaining interface between EMS personnel assigned to the Emergency Services Department and Occupational Medicine, and other elements of the emergency response organization, is critical to ensure proper patient care, timely reporting of emergency situations, proper mitigation of emergency incidents, and oversight of EMS protocol delivery.

Due to the remote industrial setting of the NTS failure to maintain paramedic and EMT level certifications, licenses, and State of Nevada operating permit would result in a decrease of standard of care and the ability to transport patients long distances to definitive care facilities. This would potentially result in increases mortality and morbidity.

Section 3 – Standards:

The Necessary & Sufficient set of standards applicable to this work activity is as follows:

Standard	Title
29 CFR 1910.1030	Blood Borne Pathogen Regulations for Health Care Workers
<i>Note Added by BCR 99-011.</i>	
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response

4.1.3 **Emergency Medical Services**

Latest Revision: 7/30/2002

Note Added by BCR 99-011.

29 CFR 1910.132	Personal Protective Equipment, General Requirements
-----------------	---

Note Added by BCR 99-011.

29 CFR 1910.134	Respiratory Protection Guidelines
-----------------	-----------------------------------

Note Added by BCR 99-011.

29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
----------------	---

Note Added by BCR 99-011.

KKK-A-1822	Federal Specification for Ambulance Design, or as Approved by the State of Nevada EMS Representative
------------	--

Note Added by BCR 99-011.

National Fire Protection Association (NFPA) 1581	Fire Department Infection Control Program
--	---

Note Added by BCR 99-011.

National Fire Protection Association (NFPA) 1999	Standard on Protective Clothing for Emergency Medical Operations
--	--

Note Added by BCR 99-011.

National Fire Protection Association (NFPA) 471	Recommended Practice for Responding to Hazardous Materials Incidents
---	--

Note Added by BCR 99-011.

National Fire Protection Association (NFPA) 472	Professional Competence of Responders to Hazardous Materials Incidents.
---	---

Note Added by BCR 99-011.

National Fire Protection Association (NFPA) 473	Standard for Competencies for EMS Personnel Responding to Hazardous Materials Incidents
---	---

Note Added by BCR 99-011.

NRS 450B.015 – 450B.936	All Encompassing Regulation Governing Emergency Medical Services
-------------------------	--

Note Added by BCR 99-011.

Section 4 - Measurement Parameters:

4.1.3 *Emergency Medical Services*

Latest Revision: 7/30/2002

Many health measures associated with the delivery of pre-hospital emergency medical care in critical incidents are not directly attributed to the paramedic service. However, EMS plays a vital role in improving patient survivability during critical emergencies, thereby, reducing negative impacts to the user on the NTS. Response times are evaluated to ensure timely ingress and egress of incident locations, including two minute or less out-of-station requirement. Performance parameters such as, but not limited to, medical protocol adherence, timely response, appropriate communications and written documentation are discussed during run review meetings with the Medical Director.

Section 5 - Implementation Considerations:

The base service EMS system is currently implemented, however, in the event expansion of the EMS service is required, paramedic certification reciprocity and site-specific training requirements may affect ability to fully staff and operate additional station locations in a timely manner. Significant increase in overtime levels may be required to operate new stations until recruitment process is completed, equipment acquired, and facilities made ready. A coordinated effort between project planners, project managers and ESD is required to facilitate EMS expansion with minimal implementation impact.

Section 6 - Work Environment:

Paramedics and firefighter EMTs interact with workers and other members of the NTS Emergency Response Organization in a clinical setting as well as emergency incidents. Working conditions during emergency activities are diverse and potentially hostile (ambient environmental conditions, hazardous material incidents, fires, etc.) requiring the utmost attention to safety. Paramedics and firefighter EMTs may also interact with emergency response professionals from surrounding communities through MOA and MOU during routine emergency incidents and large-scale disasters.

Section 7 - Uncertainties or Issues:

EMS services described in this document are considered base level. Providing support above those indicated would require additional funding sources to provide either additional personnel, stations, or overtime assignments.

Section 8 - Training:

Paramedics and firefighter EMTs receive continuing education in accordance with State of Nevada regulations. Certifications and licenses must be maintained to remain in compliance with State Law. Additionally, paramedics and firefighter EMTs are required to receive site-specific training in accordance with Company and Department of Energy requirements.

4.1.3 *Emergency Medical Services*

Latest Revision: 7/30/2002

Section 9 - Vulnerabilities:

Failure to comply with Federal, State, Local, or site-specific requirements may result in a reduction of emergency medical care to NTS workers. As a result of noncompliance, fines as well as increased company liability and negative publicity for DOE/NV. Worst-case scenario would result in cessation of paramedic level ambulance transport capabilities, thereby, increasing the potential for loss-of-life and morbidity during emergency situations at the NTS.

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

Section 1 - Work Activity:

Systematically, prepare, implement, validate and revise policies, procedures and practices that will ensure continuous evaluation, identification, and prevention or control of general, specific and potential work place hazards.

Assist management in performing a variety of work site evaluations to identify existing hazards and operations where changes could create additional hazards. Identification goes beyond the specific requirement of the law to address all hazards.

Participate in project planning activities at the onset so that hazards are identified and prevented through effective design which incorporates safety and health concerns as an integral part of the project from inception. This would include design package review, preliminary hazard analyses, etc.

Assist managers in integrating safety and health training into other training including performance requirements and job practices.

Provide identification, exposure monitoring, and technical advice to managers to eliminate or adequately control employee exposure to toxic or hazardous substances and other unhealthful conditions.

To the maximum extent possible, employees affected by these actions are involved with OSH professionals in safety assessments, including:

- Conducting comprehensive baseline work site surveys.
- Analyzing and planning OSH requirements for new facilities or modification to existing facilities, processes, materials, and equipment.
- Assisting with the conduct of job hazard analyses.
- Performing regular site safety and health inspections.
- Promptly responding to employee concerns or complaints regarding their safety and health.
- Investigating accidents and near misses to identify causes and means to prevent them.

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

- Analyzing injury and illness statistics over time to identify and prevent trends with common causes.

Establish controls and provide technical assistance in correcting current and potential hazards in a timely manner.

Interface with other operations and managers to assure other program elements effectively contribute to the safety and health of the work environment to include procurement, maintenance of facilities and equipment, medical departments, engineering, etc.

Interface with DOE and other outside organizations, including professional societies and standards committees.

Perform periodic comprehensive program audits to evaluate the whole set of safety and health management measures, methods, and processes to determine their adequacy in protecting against hazards and if the policy and procedures are properly implemented and are meeting the objectives of the program.

Processing requests for variations, exemptions, etc.

Ensuring standards, statistical information related to the programs, program elements, etc., are either posted for employee viewing or are available on request.

Section 2 - Hazards and Management Issues:

Hazards:

Failure to achieve effective control over work site hazards can result in loss of human life, lifetime disability, and pain and suffering by employees. These are unacceptable by-products of doing work. This WBS represents an element of the overall OSH program. The occupational health program is discussed in WBS 4.2.2.

Workers and staff performing this OSH function are exposed to the same hazards and environment as those performing the activity being reviewed.

Personnel performing this work will comply with other applicable program requirements developed through the Necessary and Sufficient process.

Management Issues:

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

Failure to have an effective program can have an adverse effect on the health and safety of workers and on operating costs. Management commitment is a key element in implementing and maintaining an effective safety and health program. To be effective, management must regard safety and health protection with as much enthusiasm as they approach other organizational goals and objectives. The managerial practices that are essential to the safety and health program are the same practices, means and methods used by employers to achieve cost control, quality and productivity. The safety and health program must have equal organizational priority in order to succeed.

An effective program is defined in the Federal Register, discussed in paragraph 5.0. The management principles are also repeated in the U.S. Department of Labor Voluntary Protection Program; however, actions in addition to those required by the standards or public law may achieve higher levels of recognition. There is an additional cost to participate in the VPP program. This is considered an acceptable cost of doing business for this work activity and includes work given to subcontractors. Some of these actions are:

- Investigation of accidents and near miss accidents and publishing the lessons learned.
- Holding managers accountable for ES&H through the performance evaluation process.
- Including an evaluation and screening of subcontractors' ES&H performance and programs before awarding contracts.
- Annual ES&H program assessments.
- Site orientation of all non-contractor employees to ensure they are aware of the ES&H requirements, hazards and actions.
- Concerns expressed by employees are addressed and documented.
- Employees are included in the resolution of ES&H concerns or problems. They are included in the safety and health committees and through a suggestion program.
- All members of the safety and health committees are equal members to participate in the resolution of ES&H concerns or problems and improvement of ES&H programs.
- Job site hazard analysis and pre-task analysis programs.

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

- Analysis and publishing of hazards identified and trends.
- Medical involvement in wellness programs and inclusion of medical staff in employee programs.

Section 3 – Standards:

The DOE Nevada operations involve work at remote sites, specifically, Santa Barbara and Amador Valley (California), and at sites controlled by others such as Los Alamos Operations (New Mexico), Nellis Air Force Base (Nevada), and WAMO at Andrews Air Force Base (Maryland). These standards will be applicable and will be implemented. Contractors are required to comply with the host requirements in those areas where a support/occupancy agreement exist. Conflicts will be resolved in accordance with the provisions of these agreements. Safety and health professionals performing technical support or oversight at field locations acknowledge they have a requirement to comply with the rules at those sites and to have the required training.

Standard

Title

29 CFR 1904

Record Keeping for Occupational Injuries/Illnesses

Note Establishes record keeping requirements for injury and illness data. Provides for annual posting of data for employee information.

29 CFR 1905 Subpart B

Applications for Variances, Limitations, Variations, Tolerances, Exemptions and Other Relief

Note Prescribes methodologies for seeking temporary or permanent relief from the OSHA standards adopted under the overall program. Hazards for work that is accomplished where an OSH standard cannot be met or in situations where compliance would cause a greater hazard are addressed through the safety analyses and the controls implemented. A variation or exemption request also addresses the interim or equivalent level of protection until final approval is granted. In this context application for the variances, limitation, variations, tolerances, exemptions and other relief would be submitted to DOE, as the federal agency of jurisdiction.

DOE M 231.1 Chapter II

Environmental Safety and Health Reporting Instructions

Note

DOE O 231.1, CRD

Environmental Safety and Health Reporting

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

Note Provides injury/illness reporting for collecting data, and forms the basis for documenting fundamental accident investigation data.

Provides access to a DOE operated database that will assist in trending and analyzing injury/illness data and comparing performance to other DOE sites.

29 USC 651

Occupational Safety and Health Act

Note This WBS provides the overall programmatic structure for worker protection. It is supplemented by the incorporation of specific protective measures uniquely applicable to each separate WBS. These OSHA standards represent current commercial practices. Individual WBS evaluations have verified that the cited OSH standards adequately mitigate identified hazards or additional protective measures are identified therein. In the aggregate, these standards and the accompanying implementation considerations enable an acceptable comprehensive worker safety program.

Section 4 - Measurement Parameters:

- Injuries and illness rates consistently sustained below those experienced by comparable industries.
- Development and use of an OSH performance standard for all employees. The performance standard and measure would include positive as well as negative evaluations. This results in notable reduction in Workers' Compensation costs.
- Management commitment will be measured by employee participation in and the success of the performance based safety program and the OSH committees, in reducing operating costs associated with incidents, accidents, injuries and illnesses.
- The effectiveness of the corrective actions can be demonstrated by the reduction of repeat deficiencies.
- Number of job site or pre-task analyses conducted that identify and remediate problems that could cause delays in delivery of the work or products, or prevent major safety and health impact on operations.
- The effectiveness of corrective actions through analysis of injury/illness data to show reduction in workers' compensation costs.

Section 5 - Implementation Considerations:

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

Implementation can be accomplished with minimal impact.

The establishment of an effective OSH program is based on the development of management principles that are used by employers who are successful in protecting the safety and health of their employees. These management principles were developed into program elements and promulgated as voluntary guidelines by the U.S. Dept. of Labor, Federal Register (FR)/Volume 54, No. 16, dated January 26, 1989. These same principles are used in the Voluntary Protection Program (VPP). This FR states that the savings of an effective program on construction projects is 3.2 times the cost. This cost was discussed in the Business Roundtable Report (Improving Construction Safety Performance A-3, January 1982) and is referenced in the discussion of the Federal Register. It further states that of even one medical or workers' compensation claim from an injury or illness \$5-50 or more is likely to be spent on indirect costs, such as repair of damage to buildings, equipment or tools to be replaced, damaged products or materials and to catch up for production delays. An additional \$1-3 in indirect costs will be spent for hiring and training replacements and to investigate the incident.

The OSH programs also include a Voluntary Protection Program, recognized by DOE, OSHA and industry as a higher level program with measurable results and continuous improvement.

Implementation of the OSH requirements issued in the company procedures or instructions are integrated into the work processes. Implementation of specific OSH requirements, not described by company procedures or instructions, are applied directly from the federal regulations. These procedures and regulations are performance based and accomplished by those who are held accountable to control the work processes, the work site and the employees, i.e., the first line supervisors. Employee participation is important to ensure that they contribute equally to the success of the program.

The standards indicated above are the same that are applied to commercial industries. These standards are applied to all subcontractors through the contracting process. The flow-down of requirements is not covered in this work activity, but addressed in WBS 1.0.

Section 6 - Work Environment:

The work is conducted in an industrial complex where general industry and construction type of work is performed. The work environment includes offices, hazardous waste sites, construction sites, buildings, outdoors in a desert environment with extremes of hot and cold, and remote work areas.

4.2.1 Occupational Safety and Health Programs

Latest Revision: 9/30/1996

Section 7 - Uncertainties or Issues:

DOE's exemption to enforcement activities by the U.S. Dept. of Labor, OSHA could be changed or eliminated. This action would expose DOE/NV Operations and the contractor to enforcement activities which could result in monetary penalties.

Section 8 - Training:

Training of safety and health professionals to maintain certifications and currency of OSH rules, regulations, and updates is an integral part of an effective OSH program. Maintaining the highest quality of safety and health professionals is part of the VPP. Contractors must fund and support certain certifications of OSH professionals, i.e., Certified Safety Professionals, Certified Occupational Health and Safety Technicians, and Certified Industrial Hygienists. Failure to fund and support the certifications of OSH professionals would degrade the support and the assets to the VPP.

Section 9 - Vulnerabilities:

Adverse publicity from public concerns regarding the safety and health of the work sites could arise from increases in injuries/illnesses, Workers' Compensation costs, loss of productivity, fatalities, serious accidents, etc., if only the standards, and not the voluntary protection program, are implemented.

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The Industrial Hygiene program is designed to protect the occupational work force and the non-occupational (visitors, etc.) work force from exposure to chemical, biological and physical hazards resulting from activities conducted at the Nevada Test Site and with other Nevada operations to include the Losee Road Operations (North Las Vegas, Nevada), Remote Sensing Laboratory (Nellis AFB, Nevada), Los Alamos Operations (Los Alamos, New Mexico), Special Technology Laboratory (Goleta, California), Amador Valley Operations (San Francisco, California) and the Washington Aerial Measurement Operations (Andrews AFB, Maryland). All the sites have common industrial hygiene requirements.

The major elements of the Industrial Hygiene program are to: anticipate potential work place hazards; recognize potential work place hazards; evaluate potential work place hazards; and control potential work place hazards. Each activity is explained below.

Anticipate Potential Work Place Hazards: Potential work place hazards are anticipated by reviewing construction and maintenance work packages, engineering plans and drawings, project work activity plans, and project health & safety plans. Through this review process, industrial hygiene recommendations are identified to the originating agency for inclusion in the project to minimize personnel exposures associated with the project. The anticipated work place chemical hazards result from activities conducted with toxic and hazardous substances including, but not limited to, asbestos, lead, formaldehyde, isocyanates, silica and numerous solvents and cleaners. The anticipated work place biological hazards result from activities conducted with bloodborne pathogens, rodents and their excreta, and exposures to humans with communicable diseases. The anticipated work place physical hazards result from noise, non-ionizing radiation (including lasers), heat & cold stress and ergonomic-related work activities. Note that ionizing radiation is covered under Radiological Protection.

Recognize Potential Work Place Hazards: Potential work place hazards are recognized through periodic work place health hazard inventories and health hazard assessments. The health hazard inventories identify potential health hazards. The health hazard assessments are qualitative evaluations of work place hazards using professional judgment, along with information on the potential hazards of the agent and its likelihood of release to the work place environment. From these health hazard assessments a priority list of monitoring requirements is established.

Evaluate Potential Work Place Hazards: Potential work place hazards are evaluated by the

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

scientific, quantitative measurement of chemical, biological and physical hazards such as noise, airborne chemical concentrations, non-ionizing radiation (radio frequency), and temperature extremes associated with heat & cold stress.

Control Potential Work Place Hazards: Potential work place hazards are controlled by hazard control methods implemented by line management. Hazard control methods are selected based upon the following hierarchy: engineering controls (e.g., substitution, isolation and ventilation); work practices and administrative controls (e.g., employee rotation, back shift scheduling, etc.) that limit worker exposures; use of personal protective equipment (e.g., respirators).

Section 2 - Hazards and Management Issues:

The health hazards associated with the DOE Nevada operations are comparable to similar work conducted in construction and general industry. Potential hazards that occur to both the industrial hygienist and the worker while performing these activities includes exposures to numerous chemical, physical and biological stressors.

Management issues include; 1) ensuring that a fully qualified and adequate professional staff is available to carry out the roles and responsibilities of the industrial hygiene program; 2) management support to ensure that appropriate industrial hygiene recommendations are implemented in a timely manner, and 3) implementation of a viable database system to store and manage industrial hygiene data. Presently the only existing databases are the Health Hazard Inventory system and Flow Gemini system. These systems, when implemented, will increase tracking capabilities and allow meaningful performance measurements, such as the tracking and trending of occupational exposures as noted in Section 4.0, Measurement Parameters. 4) a need for an Ergonomics Program under best management practice, since there are no adoptable standards.

Section 3 – Standards:

The following standards, controlling physical, chemical and biological hazards have been determined to be necessary & sufficient to serve as the basis for an Industrial Hygiene Program. These standards are in accordance with the "law of the land" and are typically followed in industrial hygiene programs. Professional judgment is used in providing the best protection to the worker in cases where standards do not agree. Facilities at DOE/NV-managed locations are subject to requirements of the host states and local governments.

Standard	Title
29 CFR 1910.1000	Air Contaminants

Note *If conflict exists between PELs and the TLVs, professional judgment will be*

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

used.

29 CFR 1910.1001

Asbestos

***Note** Asbestos abatement activities except design and actual abatement (asbestos removal) are implemented under the Industrial Hygiene Program.*

29 CFR 1910.1020

Access to Employee Exposure and Medical Records

***Note** Redesignated 29 CFR 1910.1020, Federal Register 31427, June 20, 1996.*

29 CFR 1910.1025

Lead

***Note** The Lead Management Program as defined in this standard is used to minimize worker risk of lead exposure through the use of engineering controls and good work practices. The program includes worker protection requirement that involves performing exposure monitoring of operations that generate lead dust and fume in the work place. Medical Services is responsible for the medical monitoring requirements outlined in this standard.*

29 CFR 1910.1048

Formaldehyde

***Note** Work place monitoring and practices specified in this standard are used to control formaldehyde exposure to workers.*

29 CFR 1910.1200

Hazard Communication

***Note** Programmatic requirement applicable to all WBS elements.*

29 CFR 1910.134

Respiratory Protection

***Note** The program elements include the selection and extent of respiratory protection, fit-testing and training of the users; procurement, and maintenance and issuance of respirators. Occupational Medicine is responsible for medically qualifying respirator users. Line Management is responsible for ensuring the proper use of the respirator in the work place. Medical Services performs medical evaluations for employees who wear respirators.*

29 CFR 1910.95

Occupational Noise Exposures

Note

29 CFR 1926.103

Respiratory Protection

***Note** The program elements include the selection and extent of respiratory protection, fit-testing and training of the users, procurement, and maintenance and issuance of respirators. Occupational Medicine is responsible for medically qualifying respirator users. Line Management is responsible for ensuring the proper use of the respirator in the work place. Medical Services performs medical evaluations for employees who wear respirators.*

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

29 CFR 1926.1101 Asbestos

Note Asbestos abatement activities except design and actual abatement (asbestos removal) are implemented under the Industrial Hygiene Program.

29 CFR 1926.1148 Formaldehyde

Note Comply with the provision of 29 CFR 1910.1048, Federal Register 31427, June 20 1996.

29 CFR 1926.33 Access to Employee Exposure and Medical Records

Note See 29 CFR 1910.1020, Federal Register 31427, June 20, 1996.

29 CFR 1926.59 Hazard Communication

Note See 29 CFR 1910.1200, Federal Register 31427, June 20, 1996.

29 CFR 1926.62 Lead

Note The Lead Management Program as defined in this standard is used to minimize worker risk of lead exposure through the use of engineering controls and good work practices. The program includes worker protection requirement that involves performing exposure monitoring of operations that generate lead dust and fume in the work place. Medical Services is responsible for the medical monitoring requirements outlined in this standard.

40 CFR 763 Subpart E Asbestos Containing Materials in Schools

Note Contains the required actions necessary to perform operations involving the identification, sampling, analysis, assessment, response actions, operations & maintenance, record-keeping and labeling of friable and non-friable asbestos-containing materials in the work place.

American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices

Note The Threshold Limit Value (TLV) standards are used in the work place to contribute to the overall improvement in worker protection, especially when there is no OSHA counterpart standard. Industrial Hygiene also uses the applicable TLVs relating to heat & cold stress, non-ionizing radiation, ergonomics and noise to protect workers from their respective effects in the work place.

American National Standards Institute (ANSI) Z136.1 Safe Use of Lasers

Note Methods defined in this standard are used to ensure the safe use of lasers and

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

laser systems.

American National Standards Institute
(ANSI) Z88.2

Practices for Respiratory Protection

Note For 29 CFR 1926 respiratory programs.

Center for Disease Control and
Prevention (CDC)

Hantavirus Infection - Southwestern United
States: Interim Recommendations for Risk
Reduction

Note These CDC guidelines are used for conducting inspections of work places, prevention & control of hantavirus infections in the work place, and Hantavirus Awareness training in conjunction with the Hazard Communication (HAZCOM) Training program. These CDC guidelines are used because they contain the only defined prevention and control measures published by a government agency.

Nevada Administrative Code (NAC) 618

Abatement of Asbestos

Note Establishes Nevada State license and operational requirements for Industrial Hygiene personnel and all others who work with asbestos, especially on asbestos abatement projects. Failure to comply with this standard in the State of Nevada will result in potential fines and/or imprisonment. (Applies to Nevada operations only.)

Section 4 - Measurement Parameters:

Tracking, and trend analysis over a period of time of work place exposures to determine if these exposures are decreasing as a function of the task(s) to include implementation of engineering controls, chemical substitutions and administrative controls.

Number of Industrial Hygiene evaluations conducted versus the number of hazardous work operations.

Section 5 - Implementation Considerations:

Overall implementation of the standards is complete. Implementing the issues identified in Section 7.0, Uncertainties Or Issues, would result in significant savings of time and money. In addition, streamlined, well-defined industrial hygiene program elements for all Nevada Operations would result in the more efficient use of available manpower and funding.

Industrial Hygiene program air sampling operations include requirements in accordance with procedures governing analytical laboratory operations. Industrial Hygiene will

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

comply with either (or both) of the following guidelines depending upon the requirements set forth by the contracted laboratories:

- National Institute of Occupational Safety & Health (NIOSH) "Sampling Methods." Industrial Hygiene uses this publication as a primary guideline in performing air monitoring in the work place.
- Occupational Safety & Health Administration (OSHA) "Analytical Methods." Industrial Hygiene uses this publication as a primary guideline in performing air monitoring in the work place.

If an Ergonomics Program is implemented, costs savings due to reduced ergonomic injuries can be realized.

It is accepted industry practice that the standards cited in section 3.0 apply typically to industrial hygiene operations and therefore, the same standards would apply to sub-contractor operations.

Section 6 - Work Environment:

The work is conducted in an industrial complex where general industry and construction work is performed to include underground operations (tunneling) and large-hole drilling.

Section 7 - Uncertainties or Issues:

It is uncertain whether the Industrial Hygiene's Program's source of funding for its consulting service will be common site support or as direct charges to projects. In addition, funding sources for required across-the-board programmatic elements such as the Hazard Communication, Asbestos and Lead programs, and annual work place evaluations are uncertain. The consequences of eliminating the programmatic elements are: 1) contradictory interpretation of regulatory requirements that may lead to violations of, or unnecessary expenses associated with compliance to non-existent requirements; 2) not all work places would be visited on a periodic basis which could result in potential unrecognized hazards that may lead to personal overexposures; and 3) the reduced ability of Industrial Hygiene to anticipate potential work place hazards.

The expansion of the Health Hazard Inventory and Flow Gemini systems to the NTS cannot be accomplished without additional funding and personnel. The expansion of these systems to the NTS would: 1) provide a repository of historical industrial hygiene work place exposure data; 2) give Occupational Medicine an expeditious method of correlating occupational illnesses with potential causative agents in the work place; 3)

4.2.2 Industrial Hygiene

Latest Revision: 9/30/1996

provide to Environmental Management an efficient means of collecting data for required U.S. and State Environmental Protection Agency (EPA) reports; and 4) result in significant cost savings realized by reduced man-hours expended on the manual DOE compilation of data.

There is a proposed OSHA standard for Ergonomics, and if passed, it would be subject to review under the change control process before addition to the set of N&S standards.

Section 8 - Training:

Training of Industrial Hygiene professionals and technicians to acquire and maintain professional certifications and licenses, and to maintain currency in OSHA rules, regulations and updates is required.

Section 9 - Vulnerabilities:

N/A

4.3.1 Medical Program Management

Latest Revision: 7/30/2002

Section 1 - Work Activity:

The physician responsible for the delivery of medical services shall be named the Site Occupational Medical Director (SOMD). The SOMD is responsible for the planning, implementation, and oversight of federal and contractor occupational medical programs providing services to users at DOE/NV sites and activities. These services shall include EAP.

A contractor occupational medical program shall provide occupational health services to federal and contractor employees. The goal of these services shall be to earliest possible detection and mitigation of occupational illness and injury.

The SOMD or designee shall participate as a member of each worker protection team established by each user of DOE/NV sites.

1. Coordinate with other safety and health professionals to identify work-related or work site hazards and their possible health risks to employees;
2. Possess a current knowledge of actual or potential work-related hazards through visits to all areas of DOE/NV site.

Oversight will be conducted by the SOMD or designee, and will be in accordance with these standards referenced in section 3.0, Standards.

The SOMD provided medical oversight and medical direction to emergency medical services (EMS) administered at the NTS in accordance with state law. The SOMD, or physician designee, will be available 24 hours per day, 7 days per week, for contact regarding patient treatment orders of existing protocols, and notification of emergency responses involving patient care.

The SOMD provides oversight, direction and authority to all personnel assurance or personnel surety programs, and mandatory physical conditioning programs (security force and fire department requirements, for example).

Section 2 - Hazards and Management Issues:

Due to the industrial nature of the work sites involved, Occupational Medicine personnel may be potentially exposed to typical industrial hazards and radiation. These hazards are mitigated by the operating entity being visited.

4.3.1 Medical Program Management

Latest Revision: 7/30/2002

Management issues associated with the OMP include the understanding of the roles and responsibilities of the physicians, nurses, paramedics, EMTs and medical technicians involved in the delivery of care. There are constraints on each category of personnel relative to the level of care which may be delivered. Licensing and certification bodies prescribe the scope of care each can deliver. Failure to maintain compliance with these bodies can result in litigation, civil, or criminal penalties. A malpractice PREMIUM insurance policy must be in effect to mitigate legal exposure to malpractice by health care professionals at the NTS. Failure to maintain this policy could result in costly litigation in the event of a malpractice suite being filed.

Management must understand the necessary interactions between various health care providers and worker protection teams at DOE/NV site.

Section 3 – Standards:

The necessary and sufficient standards applicable to this work activity is as follows:

Standard	Title
10 CFR 1046 <i>Note Added by BCR 99-012.</i>	Physical Protection Security Interests
10 CFR 711, Subpart A <i>Note Added by BCR 99-012.</i>	Personnel Assurance Program (PAP), PAP Certification/Recertification, Temporary Removal/Reinstatement, and Revocation of PAP Certification
DOE O 440.1A, Attachment 2, Section 19 <i>Note Added by BCR 99-012.</i>	Occupational Medicine
National Fire Protection Association (NFPA) 1582 <i>Note Added by BCR 99-012.</i>	Medical Requirements for Fire Fighters
NRS 450.b. <i>Note Added by BCR 99-012.</i>	Emergency Medical Services

Section 4 - Measurement Parameters:

Many health measures, related to occupational or preventative medicine, are interrelated with other disciplines. Therefore, the effectiveness of these measures is not directly attributable to the medical program. It is a result of teamwork among members such as

4.3.1 Medical Program Management

Latest Revision: 7/30/2002

health care providers, safety specialists, industrial hygienists, workers' compensation case management and claims personnel. The occupational medical program plays a part in the overall outcome. Below are examples of universally accepted measures not directly controlled by medical personnel. These measures must be reported to the SOMD:

- CAIRS Data
- ORPS Data
- Claims experience and costs for occupational and non-occupational injuries and illnesses
- Excess exposure levels that exceed PELs
- Return to work program measurements (days away from work or early return)

Below are measurements which are tracked by medical personnel, and must be reported to the SOMD:

- Number and cost of patient visits
- Number and cost of physical exams
- Number and cost of EAP encounters
- Number and cost of Wellness encounters
- Number and outcome of ambulance run reviews
- Number and outcome of medical care reviews

Section 5 - Implementation Considerations:

The prime contractor shall provide the physician responsible medical services.

The base services for occupational medicine, EAP, and emergency medical services are currently implemented. Any change in the scope of work or size of the workforce will mandate expansion of service capability. Such expansion of services may include recruitment, training, and certification of health care providers. Alternatively, these services may be contracted out at an increased cost. A coordinated effort between project planners, project managers and the SOMD is required to facilitate any additional services with minimum implementation impact.

Subcontractors for medical and EAP services for all areas must have provisions in them requiring contractors to comply with the applicable requirements for the locations where they will be conducting work.

Employers and other organizations using any DOE/NV or DOE/YMP facilities will inform the SOMD of the following:

1. The goal of their project

4.3.1 Medical Program Management

Latest Revision: 7/30/2002

2. The work to be done
3. Pertinent OSHA regulations of other known medical qualifications
4. Their occupational medical program
5. Operational occurrences – specifically:
 - a. All occupational illnesses and injuries occurring at DOE/NV sites
 - b. All absences over 40 consecutive hours, occupational or non-occupational
 - c. All worker deaths, whether work related or not

Section 6 - Work Environment:

Occupational Medical management personnel interact with employees in a clinical setting as well as the workplace environment. This interaction requires close cooperation and coordination with personnel involved in industrial hygiene, health physics, and safety activities.

Section 7 - Uncertainties or Issues:

Budget reductions could result in fewer personnel to carry out required medical programs and noncompliance with federal and state laws and other standards.

The base services for occupational medicine, EAP, and emergency medical services are currently implemented. Any change in the scope of work or size of the workforce will mandate expansion of service capability. Such expansion of services may include recruitment, training, and certification of health care providers. Alternatively, these services may be contracted out at increased cost. A coordinated effort between project planners, project managers and the SOMD is required to facilitate any additional services with minimum implementation impact.

Section 8 - Training:

In accordance with state law, health care providers must be licensed or certified to practice in the state where they are located. The SOMD must attend DOE specific training and qualify as a Principal Co-investigator for chelating agents. The SOMD must be qualified to function in the role of Medical Director as described in NRS 450.b.

Section 9 - Vulnerabilities:

Failure to provide Occupational Medical oversight, planning, coordination, and implementation may result in noncompliance with these stated standards which in turn may result in poor patient outcomes and negative financial impacts. Failure to establish occupational medicine programs will result in noncompliance with worker protection programs.

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

Section 1 - Work Activity:

Occupational Medicine Services will be provided at a minimum, during day shift hours Monday through Friday to DOE/ NV-related personnel. Actual physician in-clinic hours will be decided based on competing demands of medical surveillance, clinical medicine, site visits, and other administrative duties. Other health professionals, such as nurses, technicians and paramedics may be utilized to treat and triage according to protocols. Physician support for consultations will be available 24 hours per day, 7 days per week.

Medical Services shall include, at a minimum, the following elements, and shall meet the requirements, and standards, objectives stated herein.

These elements are:

Medical Records

Medical Surveillance

Clinical Medicine

Employee Assistance Program

Wellness

Clinical Waste

Medical Records

Medical records are established and maintained for each employee to provide a complete record of medical care while the employee is assigned. They are required to ensure an accurate record of medical care is maintained and to document and protect a worker's health, and protect the company in the event of litigation or health related injury or illness claims.

Medical records will be maintained in accordance with applicable DOE standards.

Medical Surveillance (MS)

MS shall be provided to workers who are potentially exposed to occupational hazards. Medical personnel interface with Industrial Hygiene and Health Physics personnel who provide employee exposure data and radiation exposure information.

MS is required to protect workers' health through the use of medical evaluation and monitoring of individuals potentially exposed to hazardous substances on the job. Knowledge of the workplace and medical surveillance provides the foundation of

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

Occupational Medicine programs. Periodic visits to work sites are required to enhance knowledge of workplace environments, hazards, and physical requirements.

Clinical Medicine

Activities under clinical medicine shall include the daily provision of:

- Assessment, diagnosis, treatment and referral (if necessary) for occupational injuries/illnesses and non-occupational injuries/illnesses and “first-visit” care for non-occupational injuries/illnesses, including initial stabilization interventions in acute medical emergencies.
- Documentation for notification of occupational illnesses/injuries to safety, industrial hygiene and risk management offices to fulfill requirements for Worker’s Compensation, OSHA, and DOE’s Computerized Accident and Injury Reporting System (CAIRS) reporting.
- Specimen collection and administrative support for MS, as required, substance abuse programs, of employees involved in safety sensitive positions, such as commercial drivers and Personal Assurance Program personnel.
- Return to Work process: All employees that are out of work for 40 consecutive hours or more due to illness or injury are required to process through the OMP prior to returning to work. All such cases will be reported to the SOMD.

Employee Assistance Program (EAP)

EAP personnel provide confidential assistance in the form of counseling and referral for employees with alcohol and drug abuse problems, family/marital conflicts, and interpersonal/social relationship problems that may interfere with the employee’s ability to function on the job. The work activity for the EAP is centered on the identification and resolution of productivity problems associated with employees potentially impaired by mental health issues and work concerns which may affect employee performance and job safety.

There are no federal or state regulations requiring an employer to provide EAP services to its employees. It is a common industry and business practice to provide these services as either a part of an occupational medicine program or a benefit managed by the Human Resource activity.

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

A company with a formal OMP has an advantage if it offers such a service as part of its "whole person" concept of preventive medicine. A positive state of mental health is an important medical component and is recognized industry-wide as necessary for proper job performance.

Wellness Program

As with the EAP service, there are no federal or state statutes requiring a Wellness Program. However, the mission of the OMP is to protect the worker's health. Prevention is the key element in occupational or preventive medicine. Wellness applies preventive medical measures toward the maintenance of the physical health of employees through health promotion and education. Wellness is a common component of medical programs nationwide. Hospitals, managed care programs, and major corporations use the preventive nature of Wellness activities to improve health, reduce costs, and increase productivity. They have become necessary to medical programs today.

This worksite-based Wellness addresses health issues with emphasis on lifestyle-related risk factors and includes assessment, promotion, education, counseling, and behavior modification of lifestyle practices.

Clinical Waste

Medical personnel have responsibility for the disposal of medical waste and hazardous waste generated and collected at their facilities. Medical waste containers are collected by a state licensed hazardous waste disposal contractor who disposes of them. Hazardous waste is accumulated in accordance with state and federal regulations and disposed of at approved TSDFs through the BN Waste Management organization. [The standards applicable to this work element are found in the 4.5, Environmental Protection Program Work Activity, and the 2.1.3, Hazardous Waste Work Activity.]

Section 2 - Hazards and Management Issues:

Due to the industrial nature of the work sites involved, OMS personnel may be potentially exposed to hazards such as chemicals, medical wastes, and biohazards (bloodborne pathogens). Also, due to exposure to bio-hazards during activities such as tending wounds and drawing blood, health care providers must wear personal protective equipment and practice universal precaution procedures when dealing with any type of body fluid.

Management issues associated with the OMS include the understanding of the roles and

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

responsibilities of the physicians, nurses, paramedics, EMTs, and medical technicians involved in the delivery of care. There are constraints on each category of personnel relative to the level of care which may be delivered. Licensing and certification bodies prescribe the scope of care each can deliver. Failure to maintain compliance can result in litigation, civil, or criminal penalties. A malpractice insurance policy must be in effect to mitigate legal exposure to malpractice by health care professionals providing services to DOE/NV-related personnel. Failure to maintain this policy could result in costly litigation in the event of a malpractice suite being filed.

Management of all user groups must understand the necessary interactions between various health care providers and worker protection teams at DOE/NV sites.

Section 3 – Standards:

Any other OSHA or ANSI standards that the SOMD may deem applicable may be applicable to a given project.

Standard

Title

10 CFR 711, Subpart B

Medical Assessments for PAP Certification
Recertification

Note Added by BCR 99-010.

Clinical Medicine

29 CFR 1910.1001 and 29 CFR
1926.1101

Asbestos

Note Added by BCR 99-010.

Medical Surveillance

29 CFR 1910.1020 and 29 CFR 1926.33

Access to Employee Exposure and Medical
Records

Note Added by BCR 99-010.

Medical Surveillance, Medical Records

29 CFR 1910.1025 and 29 CFR 1926.62

Lead

Note Added by BCR 99-010.

Medical Surveillance

29 CFR 1910.1030

Blood Borne Pathogens

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

Note Added by BCR 99-010.

Medical Surveillance, Clinical Medicine, Clinical Waste

29 CFR 1910.120 and 29 CFR 1926.65 Hazardous Waste Operations and
Emergency Response

Note Added by BCR 99-010.

Medical Surveillance, Clinical Medicine

29 CFR 1910.132 Personal Protective Equipment

Note Added by BCR 99-010.

Medical Surveillance, Clinical Medicine, Clinical Waste

29 CFR 1910.134 and 29 CFR 1926.103 Respiratory Protection

Note Added by BCR 99-010.

Medical Surveillance

29 CFR 1910.48 and 29 CFR 1926.1148 Formaldehyde

Note Added by BCR 99-010.

Medical Surveillance

29 CFR 1910.95 and 29 CFR 1926.52 Occupational Noise Exposure

Note Added by BCR 99-010.

Medical Surveillance

ANSI Z136.1 Safe Use of Lasers

Note Added by BCR 99-010.

Medical Surveillance Program

NFPA Standard 1582 Fire Department Occupational Safety &
Health Program, Physical Fitness
Requirement

Note Added by BCR 99-010.

Medical Surveillance

DOE O 440.1A "Occupational Medical," Attachment 2,

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

Section 19

Note Added by BCR 99-010.

Occupational Medical Program, Medical Surveillance, Clinical Medicine

Section 4 - Measurement Parameters:

Many health measures, related to occupational or preventive medicine, are interrelated with other disciplines. Therefore, the effectiveness of these measures is not directly attributable to the medical program. It is a result of teamwork among members such as physicians, safety specialists, industrial hygienists, workers' compensation case management and claims personnel. The occupational medical program plays a part in the overall outcome.

Below are measurements which are tracked by medical personnel, and must be reported to the SOMD.

- Number and cost of patient visits
- Number and cost of physical exams
- Number and cost of EAP encounters
- Number and cost of Wellness encounters
- Number and outcome of ambulance run reviews
- Number and outcome of medical care reviews
- Excess exposure levels that exceed PELs
- Return to work program measures (days away from work or early return)

Section 5 - Implementation Considerations:

The base services for occupational medicine, EAP, and emergency medical services are currently implemented. Any change in the scope of work or size of the workforce will mandate expansion of service capability. Such expansion of services may include recruitment, training, and certification of health care providers. Alternatively, these services may be contracted out at increases cost. A coordination effort between project planners, project managers and the SOMD is required to facilitate any additional services with minimum implementation impact.

Subcontracts for medical and EAP services for outlying areas must have provisions in them requiring contractors to comply with the applicable requirements for the locations where they will be conducting work.

Employers and other organizations using any DOE/NV or DOE/YMP facilities will inform

4.3.2 Occupational Medical Services

Latest Revision: 7/30/2002

the SOMD of the following:

1. The goal of their project
2. The work to be done
3. Pertinent OSHA regulations or other known medical qualifications
4. Their occupational medical program
 - a. All occupational illness and injuries occurring at DOE/NV sites
 - b. All substances over 40 consecutive hours, occupational or non-occupational
 - c. All worker deaths, whether work related or not

Section 6 - Work Environment:

Occupational physicians and other health care personnel interact with employees in a clinical setting as well as the workplace environment. This interaction requires close cooperation and coordination with personnel involved in industrial hygiene, health physics, and safety activities.

Section 7 - Uncertainties or Issues:

Budget reductions could result in fewer personnel to carry out required medical programs resulting in noncompliance with federal and state laws and other standards.

The base services for occupational medicine, EAP, and emergency medical services are currently implemented. Any change in the scope of work or size of the workforce will mandate expansion of service capability. Such expansion services may include recruitment, training, and certification of health care providers. Alternatively these services may be contracted out at increased cost. A coordinated effort between project planners, project managers and the SOMD is required to facilitate any additional services with minimum implementation impact.

Section 8 - Training:

In accordance with state law, health care providers must be licensed or certified to practice in the state where they are located.

Section 9 - Vulnerabilities:

Failure to provide Occupational Medical oversight, planning, coordination, and implementation may result in noncompliance with these standards which in turn may result in poor patient outcomes and negative financial impacts. Failure to establish occupational medicine programs will result in noncompliance with worker protection programs.

4.4 *Radiation Protection*

Latest Revision: 7/26/2002

Section 1 - Work Activity:

The Radiation Protection Program at the Nevada Test Site is designed to protect occupational workers from unnecessary exposure to ionizing radiation using the principle of As Low As Reasonably Achievable (ALARA).

Elements of this program are: Exposure Control, Monitoring, Records, Training, and Radioactive Materials Control. Each activity is explained below:

Exposure Control: Radiation exposure is controlled such that radiation exposures are well below regulatory limits. This is accomplished by reducing time spent in radiation areas, controlling distance to a radiation source, by shielding of the radiation source, and by access/entry control to radiological areas. Exposure control is accomplished through the use of signs and barricades, locked entrance ways, conspicuous visual/audible alarms, administrative procedures, engineering and design processes, the use of Radiological Work Permits (RWPs), and by direct surveillance.

Monitoring: This activity identifies the radiological hazards in the workplace. Workplace monitoring is accomplished by conducting radiation and contamination surveys, by use of constant air monitoring systems (CAMS) as applicable, air sampling, soil sampling, water sampling, and area dosimetry. Personnel monitoring is accomplished by performing radiation surveys, by use of personnel dosimetry, and by implementation of the internal dosimetry program.

Posting, Demarcation, and Labeling are also included in this activity. Radiological areas and radioactive materials are posted and labeled. Radiological areas are posted to alert personnel to the presence of external radiation or contamination.

Radiation protection instrumentation is an element of the monitoring activity. This activity involves choosing the right instruments for the expected radiation, maintenance and calibration, and field checks. The maintenance and calibration of these instruments will be discussed by the infrastructure Standards Identification Team (SIT) in WBS 3.10.

Records: A radiological records program is maintained. These records are used to track doses received by personnel, provide personnel exposure histories, determine work area histories, and provide other radiological information that might be needed to assess situations. Dose reports are also made available to workers to inform them of their exposure. Radiological performance goals and indicators are maintained to determine program performance and trends.

4.4 *Radiation Protection*

Latest Revision: 7/26/2002

Training: Personnel are trained on the hazards of radiation up to the appropriate level of radiological hazards to which they are expected to be exposed. Radiological safety training instructs personnel on the hazards of radiation and what to do in radiological work situations. The levels of radiation training received are used to determine access eligibility to the different levels of radiological areas.

Radioactive Materials Control: This activity includes the survey and release of equipment and material from radiological areas, tracking of stored radioactive material and equipment, the decontamination of contaminated equipment and material, and source accountability.

Radiation protection of the environment will be discussed in WBS 4.9, Environmental Monitoring Program.

Section 2 - Hazards and Management Issues:

Hazards associated with the Radiation Protection Program include exceeding control levels and dose limits.

Management issues include:

- Failure to properly implement the Radiation Protection Program.
- Failure to ensure that the Radiation Protection and ALARA programs are effective.

Implementation of the Radiation Protection Program is a line management responsibility. Managers are expected to hold workers and their supervisors accountable for Radiological Control performance.

The Radiological Control Organization provides relevant support to line management and workers and is independent of line organizational elements.

Management commitment and support are demonstrated by allocating sufficient resources including personnel and providing training to ensure workers are qualified for duties including radiological work.

Section 3 – Standards:

A comparison of 10 CFR 20 and 10 CFR 835 shows similarity of content and program objectives. 10 CFR 20 applies to agencies and programs requiring a Nuclear Regulatory

4.4 **Radiation Protection**

Latest Revision: 7/26/2002

Commission (NRC) license. Paragraph 20.1001 of 10 CFR 20 states that this part applies to NRC licensees. DOE/NV is not an NRC licensee. 10 CFR 835 is implicit in its application to DOE facilities and programs. 835.1(b) exempts all NRC licensed activities from this rule. The Price-Anderson Act requires that all Government Contractors obey the federal rules or be subject to criminal penalties. Therefore, these rules are considered necessary. Since 10 CFR 835 is similar in content to the nuclear industry standard of 10 CFR 20, it should be considered sufficient for its intended application to DOE activities.

Standard

10 CFR 835

Title

Radiation Protection for Occupational Workers

Note BCR 1998-002

This Federal Rule establishes radiation protection standards, limits, and programs for protecting individuals from ionizing radiation at DOE facilities.

DOE N 441.1

Radiological Protection for DOE Activities

Note BCR 1998-002

Paragraph 6e only. This DOE Notice establishes requirements for the radiation standards, limits and programs for the control of sealed radioactive sources at DOE facilities.

Section 4 - Measurement Parameters:

- Attainment of ALARA performance goals.
- Radiological Occurrences.
- Contaminated surface area.
- Radiation Protection cost per number of dosimeters issued.

Section 5 - Implementation Considerations:

Specific articles of DOE/NV10630-59, NV/YMP RADIOLOGICAL CONTROL MANUAL are used in the site-wide Radiation Protection Program (RPP) to implement requirements of 10 CFR 835. The Department of Energy Laboratory Accreditation Program (DOELAP) is used to certify the dosimetry laboratory as required by 10 CFR 835. 10 CFR 835 and the DOE/NV 10630-59, NV/YMP Radiological Control Manual have already been implemented. Since these standards have been implemented, there is no

4.4 *Radiation Protection*

Latest Revision: 7/26/2002

adverse impact on implementation. However, some of the requirements of DOE/NV 10630-59 are excessive and costly. DOE/NV 10630-59 should be reevaluated and revised to cut excessive requirements and cost.

Any DOE activity requiring an NRC license is exempted from the standards set by 10 CFR 835. However, these activities would be required to adhere to the standards set in 10 CFR 20. Any subcontractor coming on the site would be required to adhere to the standards set in 10 CFR 835 unless it operates under an NRC license. If operating under an NRC license, the subcontractor would continue to follow the standards set forth in 10 CFR 20 while at a DOE/NV facility.

Section 6 - Work Environment:

Work is conducted both indoors and out. Work can be conducted in inclement weather and in a variety of industrial settings.

Section 7 - Uncertainties or Issues:

None

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

The centralized training organization does not have a sufficient number of qualified instructors.

If any part of the Radiation Protection Program fails, both Civil and Criminal penalties can be assessed.

4.5 *Environmental Protection Program*

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The Environmental Protection Program of DOE/NV-managed facilities and sites at the NTS, Las Vegas Area Offices (LVAO), and satellite locations in California, New Mexico and Maryland is based on Federal and State environmental protection regulations and requirements. Implementation of these requirements is documented in individual company procedures of instructions and integrated into the work processes. Specific environmental requirements not described by procedures or instructions are applied directly from the Federal or State regulations. Functional activities, to assist in the success of the program implementation, include scheduled and unscheduled compliance assessments and a variety of regulatory support services. The assessment process and ongoing regulatory support are the tools used to verify a working environmental protection program at DOE/NV facilities. The functional aspects of each of these programs are discussed in greater detail below:

Regulatory Compliance Assessments. Compliance status relating to the environmental regulations referenced in this document is determined using assessments. These assessments can consist of location-focused facility assessments or more broad programmatic assessments. The information gathered during the assessment process is used within the context of the Environmental Protection Program to identify any possible areas of concern or regulatory violations that require immediate attention and to track any developing or existing trends that may indicate a recurrent negative environmental condition.

Regulatory Support. The Environmental Protection Program identifies the appropriate environmental laws and regulations and provides environmental regulatory support to project and functional managers. These environmental professionals assist in interpreting regulatory requirements associated with the manager's scope of work. In this role, the environmental professional provides guidance to the manager as to which regulatory requirements apply to their facilities, projects, or operations and assists the manager in achieving compliance through day-to-day involvement and direction on how to conduct self-assessments.

The Environmental Protection Program supports DOE's NEPA program by evaluating the impacts of DOE's activities on the environment. Project managers are responsible for ensuring that NEPA requirements are met, including the identification of projects requiring NEPA and the completion of all required NEPA documentation. Environmental professionals support the effort by assisting in: identifying NEPA requirements, developing NEPA compliance documentation, reviewing documents prepared by others,

4.5 *Environmental Protection Program*

Latest Revision: 9/30/1996

and tracking documents through the approval process. NEPA compliance involves protection of peripheral to traditional environmental resources (air, water, soil) such as wetlands, coastal zones, endangered, threatened, and protected species and items and facilities of archaeological and historic interest.

Section 2 - Hazards and Management Issues:

Due to the nature of the work environment, it is unlikely that significant impacts on the environment or public and worker health and safety would result from any of the activities outlined under the Environmental Protection Program. Any significant impacts would result from failure of the operations being assessed or supported, but not from the assessment or support processes themselves. However, it is possible, due to the industrial nature of the settings being assessed or supported, that environmental professionals could be exposed to a wide variety of physical and chemical hazards, such as: inclement weather (rain, snow, heat exhaustion, etc.), poor terrain (slips and falls), chemical exposure, heavy machinery, and biohazards (blood borne pathogens and hantavirus).

The largest hazard associated with the Environmental Protection Program is the potential for damage to the environment when deficient conditions are not properly identified and controlled or mitigated. DOE/NV activities, due to their high public profile and the DOE's commitment to regulatory compliance, cannot operate under substandard criteria.

Management issues associated with the Environmental Protection Program include the definition of roles within the programs and their interfaces with the operational programs (i.e. hazardous waste management, solid waste management, sewage lagoons, etc.). A defined roles and responsibilities structure must be designed and maintained. Any gaps in the linked compliance and operational environmental programs could result in significant fines and penalties associated with non-compliance.

Section 3 – Standards:

The necessary and sufficient standards which establish the basic authorities for developing an effective environmental protection program are listed below. These standards will be used as the bases for assessments and the provision of regulatory support activities. This list may not be inclusive because a complete regulatory review is performed for each project or operation (usually prior to initiation) to identify the applicable local, state, and federal laws. This set of standards is considered the "law of the land," and is necessary for the State of Nevada. It is expected to be supplemented by analogous State and local codes in other DOE/NV-managed locations.

4.5 Environmental Protection Program

Latest Revision: 9/30/1996

Standard	Title
10 CFR 1021	National Environmental Policy Act Implementing Procedures
<i>Note NEPA/Endangered Species/Historic Preservation Requirements</i>	
10 CFR 1022	Compliance With Floodplain/Wetlands Environmental Review Requirements
<i>Note NEPA/Endangered Species/Historic Preservation Requirements</i>	
29 CFR 1910.106(b)	Flammable and Combustible Liquids Tank Storage
<i>Note</i>	
29 CFR 1910.141(b)(2)(ii)	Sanitation – Water Supply – Non-Potable Water
<i>Note Drinking Water Quality</i>	
36 CFR 800	Parks, Forests, and Public Property – Protection of Historic and Cultural Properties
<i>Note NEPA/Endangered Species/Historic Preservation Requirements</i>	
40 CFR 116	Protection of Environment – Designation Of Hazardous Substances
<i>Note Water Quality</i>	
40 CFR 117	Protection of Environment – Determination Of Reportable Quantities For Hazardous Substances
<i>Note Water Quality</i>	
40 CFR 1500-1517	Chapter V – Council on Environmental Quality
<i>Note NEPA/Endangered Species/Historic Preservation Requirements</i>	
40 CFR 152.175	Restricted Use of Pesticides
<i>Note Currently (July 1996) not applicable as we are not using any of them.</i>	
40 CFR 302	Designation, Reportable Quantities and Notification
<i>Note Spill Reporting and Emergency Response Coordination</i>	
40 CFR 355	Emergency Planning and Notification
<i>Note Spill Reporting and Emergency Response Coordination</i>	

4.5 Environmental Protection Program

Latest Revision: 9/30/1996

40 CFR 50	National Primary And Secondary Ambient Air Quality Standards
-----------	--

Note Air Quality

40 CFR 53	Ambient Air Monitoring Reference And Equivalent Methods
-----------	---

Note Air Quality

40 CFR 58	Ambient Air Quality Surveillance
-----------	----------------------------------

Note Air Quality

40 CFR 60	Standards of Performance for New Stationary Sources
-----------	---

Note Air Quality

40 CFR 61	National Emission Standards For Hazardous Air Pollutants
-----------	--

Note Air Quality and Asbestos Management

40 CFR 761	Polychlorinated Biphenyl (PCB) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
------------	--

Note PCB Management

40 CFR 80	Requirements for Gasoline Detergent Additives
-----------	---

Note Air Quality

40 CFR 82	Protection of Stratospheric Ozone
-----------	-----------------------------------

Note Air Quality

Executive Order 11593	Protection and Enhancement of the Cultural Environment
-----------------------	--

Note NEPA/Endangered Species/Historic Preservation Requirements

Executive Order 12843	Procurement Requirements and Policies for Federal Agencies for Ozone-depleting Substances
-----------------------	---

Note Order dated April 21, 1993. Waste Minimization/Recycling/Pollution Prevention.

Executive Order 12856	Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements
-----------------------	--

4.5 **Environmental Protection Program**

Latest Revision: 9/30/1996

Note *Order dated August 3, 1993. Waste Minimization/Recycling/Pollution Prevention and Spill Reporting and Emergency Response Coordination.*

Executive Order 12873

Federal Acquisition, Recycling, and Waste Prevention

Note *Order dated October 20, 1993. Waste Minimization/Recycling/Pollution Prevention.*

City of North Las Vegas, Municipal Code
Title 4, Chapter 17

Drinking Water Quality

Note *Drinking Water Quality, mandatory for operations within CNLV jurisdiction*

City of North Las Vegas, Municipal Code
Title 4, Chapter 8

Water Waste

Note *Drinking Water Quality, mandatory for operations within CNLV jurisdiction*

City of North Las Vegas, Municipal Code
Title 4, Chapter 9

Water Conservation

Note *Drinking Water Quality, mandatory for operations within CNLV jurisdiction*

City of North Las Vegas, Municipal
Codes, Chapter 4.14

Wastewater Collection and Treatment

Note *Water Quality, mandatory for operations within CNLV jurisdiction.*

City of North Las Vegas, Ordinance 1125

Regarding Backflow And Cross
Connections

Note *Drinking Water Quality, mandatory for operations within CNLV jurisdiction*

Clark County Sanitation District (CCSD)
Resolution 92-012

Water Quality

Note *Water Quality, regulations governing grease and sand/oil interceptors discharging to CCSD facilities.*

Clark County Sanitation District (CCSD)
Resolution No. 83-012

Water Quality

Note *Water Quality, amends regulations governing direct and indirect contributions into the waste treatment system of the CCSD.*

Nevada Administrative Code (NAC)
444.570 - 444.7499

Solid Waste Management

Note *Solid Waste Management/Non-Hazardous Waste Management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

4.5 **Environmental Protection Program**

Latest Revision: 9/30/1996

Nevada Administrative Code (NAC) Certified Applicator Regulations
444.600 - 444.700

***Note** Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included. (Currently (July 1996), none of these materials are in use.)*

Nevada Administrative Code (NAC) Sewage Disposal
444.750 - 444.840

***Note** Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) Disposal of Hazardous Waste
444.850 - 444.8746

***Note** Hazardous Waste Management, Nevada Only*

Nevada Administrative Code (NAC) Polychlorinated Biphenyl (PCB)
444.940 - 444.960

***Note** PCB management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) Disposal of Asbestos
444.965 - 444.976

***Note** Asbestos Management, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) Water Pollution Controls
445A.070 - 445A.348

***Note** Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included..*

Nevada Administrative Code (NAC) Release of Pollutant
445A.345 - 445A.348

***Note** Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) Public Water Systems – Water Quality
445A.450 - 445A.540

***Note** Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) Operators of Privately Owned Systems
445A.617 - 445A.652

***Note** Applies to Nevada only. Other states require comparable measures though*

4.5 Environmental Protection Program

Latest Revision: 9/30/1996

their cites have not been specifically included.

Nevada Administrative Code (NAC) 445A.655 - 445A.681	Public Water Systems – Water Supply
---	-------------------------------------

Note *Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) 445A.810 - 445A.925	Underground Injection Control
---	-------------------------------

Note *Drinking Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) 445B.001 - 445B.395	Air Pollution
---	---------------

Note *Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) 459.9921 - 459.999	Storage Tanks
--	---------------

Note *Underground Storage Tanks, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) 477.323	Permit to Store Hazardous Material
---	------------------------------------

Note *Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Administrative Code (NAC) 503.10 - 503.80 and 504.510 - 505.550	Hunting, Fishing, and Trapping: Miscellaneous Protective Measures
---	--

Note *NEPA/Endangered Species/Historic Preservation Requirements*

Nevada Administrative Code (NAC) 527.010 - 527.020	Protection and Preservation of Timbered Lands, Trees, and Flora
---	--

Note *NEPA/Endangered Species/Historic Preservation Requirements*

Nevada Administrative Code (NAC) 555.250 - 555.530	Custom Application of Pesticides
---	----------------------------------

Note *Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.*

Nevada Revised Statutes (NRS) 444.440 - 444.645	Collection and Disposal of Solid Waste
--	--

Note *Solid Waste Management/Non-Hazardous Waste Management*

4.5 Environmental Protection Program

Latest Revision: 9/30/1996

Nevada Revised Statutes (NRS) 445.030 Furnishing Impure Water for Use
Unlawful; Concentration of Fluoride in
Water

*Note Drinking Water Quality, applies to Nevada only. Other states require
comparable measures though their cites have not been specifically included.*

Nevada Revised Statutes (NRS) Water Pollution Control
445.131 - 445.354

*Note Water Quality, applies to Nevada only. Other states require comparable
measures though their cites have not been specifically included.*

Nevada Revised Statutes (NRS) Public Water Systems
445.361 - 445.399

*Note Water Quality, applies to Nevada only. Other states require comparable
measures though their cites have not been specifically included.*

Nevada Revised Statutes (NRS) Air Pollution
445.401 - 445.601

*Note Applies to Nevada only. Other states require comparable measures though
their cites have not been specifically included.*

Nevada Revised Statutes (NRS) 445.650 Evidence of Compliance: Exemptions
from Requirements

*Note Water Quality, applies to Nevada only. Other states require comparable
measures though their cites have not been specifically included.*

Nevada Revised Statutes (NRS) Disposal of Hazardous Waste
459.400 - 459.600

Note Hazardous Waste Management, Nevada Only

Nevada Revised Statutes (NRS) Storage Tanks
459.800 - 459.856

*Note Spill Reporting and Emergency Response Coordination, applies to Nevada
only. Other states require comparable measures though their cites have not
been specifically included.*

Nevada Revised Statutes (NRS) Administration and Enforcement – General
501.105 - 501.243 Provisions

*Note NEPA/Endangered Species/Historic Preservation Requirements, applies to
Nevada only. Other states require comparable measures though their cites
have not been specifically included.*

Nevada Revised Statutes (NRS) 527.050, Protection and Preservation of Timbered

4.5 Environmental Protection Program

Latest Revision: 9/30/1996

527.100, 527.260, and 527.270 Lands, Trees, and Flora

Note NEPA/Endangered Species/Historic Preservation Requirements, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.

Nevada Revised Statutes (NRS) Underground Water and Wells
534.010 - 534.190

Note Drinking Water Quality, applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.

Nevada Senate Bill Number 360 Water Conservation

Note Applies to Nevada only. Other states require comparable measures though their cites have not been specifically included.

Section 4 - Measurement Parameters:

- The number of scheduled assessments performed which consistently do not result in the discovery of noncompliances.
- Discovery and immediate correction of noncompliances prior to enforcement action leading to cost savings or fine avoidance.
- Tracking and trend analysis of noncompliances to prevent recurrent conditions (lessons learned).

Section 5 - Implementation Considerations:

The Environmental Program, based upon the laws, regulations, executive orders, and standards identified above has been implemented. Maintenance of implementation effectiveness and identification of forthcoming changes in the necessary and sufficient set of standards should be considered by management as an ongoing task related to implementation. An evaluation should also be made as to the depth of control or involvement the Environmental Protection Program will have over the generation and maintenance of company-level procedures relating to the environment.

Certain state of Nevada regulations require permits or other approvals for operations which have the potential to result in pollution. The following permits have been issued by the state of Nevada in accordance with state regulations. This list is not a complete list of environmental permits, as it does not contain permits issued by other states in which DOE/NV has operations.

4.5 *Environmental Protection Program*

Latest Revision: 9/30/1996

- NEV HW009, Permit for Hazardous Waste Storage and Treatment.
- State of Nevada Air Quality Permits (various).
- General Water Pollution Control Permit, Number GNEV93001.
- Wastewater Contribution Permit #VEH-112, City of North Las Vegas.
- Clark County Sanitation District (CCSD) Industrial Users Discharge Permit - 032.
- State of Nevada Water System Permits, Numbers NY-360-12C, NY-4098-12NCNT, NY-4099-12NCNT, NY-5000-12NC, and NY-5024-12NCNT (for potable water).

All subcontracts must contain provisions requiring subcontractors to comply with the applicable requirements, including permits, determined for the locations where they will be conducting work.

Section 6 - Work Environment:

Work is conducted in an office setting, in a variety of construction and industrial settings, and in the field during the assessment and support processes.

Section 7 - Uncertainties or Issues:

When the ISO-14000 standards for Environmental Management Systems are issued in final form, estimated for July, 1996, consideration should be given to adopting and implementing these standards. They provide a useful outline for the implementation of an effective Environmental Protection Program.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Failure to comply with the requirements of the laws, regulations, or regulatory implementation plans and permits outlined in the Implementation Considerations section could result in damage to the environment, fines, and negative publicity for DOE/NV and the contractor.

4.6 *Firearms Safety*

Latest Revision: 8/8/2002

Section 1 - Work Activity:

By contract with the Department of Energy, the mission of the security protective force at DOE/NV is to perform the following functions: protection of security areas against unauthorized access; staffing fixed security stations; patrolling designated areas and points of security interests; escorting personnel or materials; checking security repositories and areas during non-working hours; apprehending unauthorized persons or vehicles in security or controlled access areas; protecting special nuclear material within the NTS boundaries; preventing through the use of force as necessary, access to security areas or to classified matter and theft or destruction of classified matter, special nuclear material, or government property; furnishing protective force personnel for related security duties, such as destruction of classified waste, staffing a central security communications center, preparing required orders, instructions and reports in connection with administration of security functions; provide test event activities which include air and ground sweeps, area muster, manning screening stations and establishing designated roadblocks; and operating primary and secondary monitoring and emergency control centers. These activities and related hazards are addressed fully in WBS 3.7, Industrial Security.

In carrying out these responsibilities, it is not necessary that the security personnel be armed unless special nuclear materials or related information is involved. Firearms currently in inventory include handguns, machine guns, sub-machine guns, rifles and grenade launchers. Of utmost importance is to ensure that armed personnel use their firearm in a safe manner. Security personnel must qualify with assigned weapons periodically and demonstrate proficiency through performance tests. During routine work activities, security personnel are required to handle, load and unload assigned firearms. During training activities, security personnel are required to handle, load/unload and fire their assigned weapons. Training is conducted both indoors (shooting house) and outdoors on live-fire ranges. In addition, the Armorer and Assistant Armorer are required to make minor repairs to firearms and conduct functional tests to ensure operability. All armed employees are required to clean firearms after use.

Section 2 - Hazards and Management Issues:

Specific hazards associated with activities involving firearms include:

- serious injury or death as a result of unauthorized (accidental) discharges.
- potential serious injury resulting from malfunctioning weapons or ammunition.

Section 3 – Standards:

4.6 Firearms Safety

Latest Revision: 8/8/2002

It is recognized there are other potential hazards associated with firearms activities that must be mitigated through the application of appropriate standards. These include hazards such as potential lead exposure, excessive noise, exposure to chemicals used for cleaning weapons, and potential environmental contamination from lead usage on live-fire ranges. These hazards are mitigated through compliance with other applicable program requirements developed through the Necessary and Sufficient process.

Standard

Title

DOE-STD-1091-96

Firearms Safety

Note Added by BCR 2000-010.

DOE M 473.2-1

Firearms Qualification Courses Manual

Note Added by Change Request 2000-010, 08/22/2000.

DOE O 440.1A, CRD, Attachment 2,
Paragraph 16

Worker Protection Management for DOE
Federal and Contractor Employees -
Firearms Safety

Note Revised by Change Request 2000-010, 8/22/2000. Standards considered necessary and sufficient for an effective firearms safety program. Consistent with practices of law enforcement agencies.

Section 4 - Measurement Parameters:

- Number of hours worked without an unauthorized discharge of a firearm.
- Number of weapons training hours without a range safety violation.

Section 5 - Implementation Considerations:

The applicable sections of DOE Order 440.1 (as referenced above) will be utilized as the standards for firearms safety. DOE Standard 1091-96 (Firearms Safety Protection) is utilized as the implementation document. All standards are currently implemented.

Section 6 - Work Environment:

Armed security personnel are required to travel over unimproved terrain throughout the NTS and may have to confront hostile members of the public who enter the NTS or other DOE or contractor facilities illegally.

Section 7 - Uncertainties or Issues:

Since DOE-STD-1091-96, Firearm Safety, will be utilized to implement standards for the contractor, any armed personnel authorized to use the firing range will be required to

4.6 *Firearms Safety*

Latest Revision: 8/8/2002

comply with the same standards.

Section 8 - Training:

When new protective force employees are hired, they are trained to ensure they can perform assigned work activities with firearms in a safe manner. Experience has shown that initial and periodic (refresher) training is required to ensure familiarization proficiency is maintained and safety rules are continually reinforced. Initial and subsequent firearms training is provided locally by WSI Certified Firearms Instructors. Advanced firearms training (as listed below) is normally accomplished at the DOE Central Training Academy (CTA):

- Advanced weapons training for certifications of firearms instructors.
- Advanced weapons training for the Armorer and Assistant Armorer. Must be certified by CTA and successfully complete a factory authorized or military approved training course for each firearm available for duty on a site. (Armorer and Assistant Armorer must be recertified every two years).

Section 9 - Vulnerabilities:

N/A

4.7 *Quality Program*

Latest Revision: 8/12/2002

Section 1 - Work Activity:

The activities associated with the Quality Program consist of 2 functions: the process/work activities and responsibilities performed by all personnel; and those support activities performed by a performance assurance group or organization designated by management to perform specific oversight functions.

Process/Work Activities (all personnel) - Functional organizations within DOE/NV contractors and subcontractors are responsible for evaluating their work processes using a systematic risk-based approach to identify and implement only the necessary requirements of the Quality Program. Personnel involved in any manner of direct or indirect support to the performance of organization responsibilities must individually ensure the quality of their work. The Quality Program applies to all work activities and will be implemented by employees in a graded manner based on the risk of those operations.

Performance Assurance Support Activities - The management-designated performance assurance group or organization is responsible for the following:

- Developing the basis for the Quality Program and coordinating the development of policies, procedures, and other implementing documents and management tools, e.g., performance indicators, deficiency tracking and trending systems, data analysis processes,
- Conducting independent oversight, compliance, and management assessments,
- Quality Program implementation support for DOE/NV-managed operations.

Section 2 - Hazards and Management Issues:

Hazards - Because the Quality Program is a management system that enhances aspects of work at the NV operations complex, an ineffective program could result in preventable process failures. An ineffective program can result from many different reasons, e.g., lack of commitment from executive management, failure of line management to implement the program, a less than fully developed program, or a program that does not lend itself to the needs of the workforce. An effective Quality Program based on the referenced standards will mitigate potential hazards with respect to worker and public health and safety, and potential criminal and/or civil actions initiated by Federal or State regulators.

Management Issues - Implementation of the selected standard will ensure that the necessary level of controls are applied to the work activities and projects based on the associated risk. Another management issue associated with the Quality Program is the

4.7 **Quality Program**

Latest Revision: 8/12/2002

following: without full commitment and support of the Quality Program by management and employees, criminal and civil liabilities may be incurred for Non-Compliance of some State and Federal requirements.

Section 3 – Standards:

Standard	Title
10 CFR 830.120, Subpart A	Quality Assurance Requirements for Nuclear Facilities
<i>Note Added by BCR 2001-013. Applicable to activities at nuclear facilities only.</i>	
DOE O 414.1A Chg 1, CRD	Quality Assurance
<i>Note Added by Change Request 2001-013, 5/16/01. Changed by BCR-2001-015, dated 9/5/2001. Also added to B2 and B3.</i>	

Section 4 - Measurement Parameters:

- Effectiveness of the Quality Program, measured by survey of Internal and External Customers and analysis of the following:
- Number of Deficiencies Identified during Independent Assessments,
- Number of Positive Findings Identified during Assessments,
- Trending and Analysis of oversight activities resulting in a lower number of process failures and conversely a higher number of process improvements. Improvement is measured as a ratio of positive and negative findings of like conditions,
- Trending of State and Federal Notice of Alleged Violations.

Section 5 - Implementation Considerations:

In complying with the requirements established in the aforementioned standards, Bechtel Nevada has developed the Performance Assurance Management Plan and WSI has prepared a Quality Assurance Plan. These documents provide systematic risk-based application of management controls on projects, facilities, and programs which will provide confidence that the necessary and sufficient resources are applied to the work activities.

The three previous Nevada Test Site contractors had approved and fully implemented DOE Order 5700.6C Quality Programs, and one contractor had an approved and fully implemented 10 CFR 830.120 Quality Program; therefore, no additional implementation

4.7 *Quality Program*

Latest Revision: 8/12/2002

considerations are anticipated short of developing consolidated project specific implementing documents.

Because of past implementation practices at NV Operations, the benefits of the graded approach were not fully realized. It is anticipated that by using the graded approach provided in DOE Order 5700.6C to its fullest potential, that monetary savings will be observed at the NV Operations complex. By implementing the necessary requirements based on risk, many operations may witness a cost savings because of fewer restrictive and unnecessary administrative burdens, or the application of tighter controls which will mitigate potential fines levied for noncompliance with State and Federal statutes.

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

Since DOE Standard 1091-95 will be utilized to implement standards for the contractor. Any armed personnel authorized to use the firing range will be required to comply with the same standards.

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

Without an effective evaluation of the risks associated with a process, project, or facility, there is the potential to be excessively rigorous or inordinately unconstrained in applying the Quality requirements. This could cause the expenditure of unnecessary resources, affect public opinion because of regulatory fines, future funding, policy decisions, or drive the cost of business beyond the competitive range, which could affect the attraction to the NV complex of outside business.

If the future tendency is to move toward another industry standard, the ability to implement the Quality Program in a common sense approach (based on the risk of the operations) will be gone. Because of the unique operations and large infrastructure of the NV operations, implementation of an another industry standard would require rigid, blind compliance and drive the cost of doing business upward, a complete departure from one of our primary goals.

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

Section 1 - Work Activity:

Emergency Management (EM) is an institutional program and system designed to ensure that an effective emergency response organization and capability is developed and maintained to protect the safety and health of workers and the general public, limit any impact on the environment, minimize equipment and facility damage, and reduce facility down time in the event of a natural or technological emergency, i.e., and Operational Emergency Base Program. In addition, an Operational Hazardous Material Program must be added to the Operational Emergency Base Program due to the nature of operations of certain facilities at some DOE/NV sites. This is particularly true for NTS facilities such as the locations where special nuclear materials are used in experiments (DAF and the U1a Complex) and locations where significant quantities of hazardous chemicals are used in experiments at the Hazardous Material Spill Center. The Emergency Management Program and System (EMPS) is accomplished through the development of necessary EM plans and procedures that implement applicable laws, regulations, and DOE requirements, commensurate with the type of operations conducted and the risks and hazards of associated operational activities. The implementation and maintenance of an institutional EMPS is then supported by the development and maintenance of EM readiness assurance, training and drill, and exercise programs. Under these concepts, DOE/NV is required to develop and maintain a baseline EMPS to support operations conducted under their cognizance at the Nevada Test Site, North Las Vegas Facilities and the Remote Sensing Laboratory on Nellis Air Force Base in southern Nevada; facilities in the Santa Barbara area, CA; Washington Aerial Measurements Operations at Andrews Air Force Base, MD; and operations in Los Alamos, NM.

- The following provides a summary of the principle programmatic elements and associated work activities that are required to develop, implement, and maintain a contemporary and baseline EMPS under current Federal, State, and local laws, regulations, and other DOE management requirements:

- Emergency planning activities involving the identification, documentation, and analysis of credible operational risks and hazards; the mitigation of identified hazards and risks to the extent practical; and the development and maintenance of comprehensive EM plans, procedures, programs, systems, and other supporting interfaces and documents. Depending on facility/operating conditions, this may include the need to establish and maintain a quantitative hazards assessment, which will be used to define the provisions of the Operational Emergency Hazardous Materials Program to ensure the program is commensurate with the hazards identified. Such hazard assessments are required if the hazard survey identifies hazardous materials in quantities exceeds the lower of the

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

Threshold Quantities listed in 29 CFR 1910.119 or 40 CFR 68.130; Threshold Planning Quantities, listed in 40 CFR 355; or quantities listed in 10 CFR 30.70 for radio nuclides. These assessments provide the basis for establishing an EMPS using the DOE graded or tailored approach to controls based on the risk of potentially adverse consequences.

- Emergency preparedness activities involving the identification, acquisition, and maintenance of sufficient funding and resources for the management and administration of the EMPS. This includes the development and maintenance of an organizational infrastructure of emergency facilities, communications systems, specialized emergency response organizations, and the following supporting elements:

- · · Emergency readiness assurance activities involving the conduct and documentation of all EMPS assessments, appraisals, evaluations, and lessons learned to ensure that established EM plans, procedures, programs, and systems are adequate, and that funding and resources are sufficient to implement, improve, and maintain an effective EMPS. These activities also include the tracking and correction of any identified deficiencies to ensure the continued maintenance of a satisfactory compliance status.

- · · Development and maintenance of an integrated EM Training Program that provides the appropriate level of training for general employees, supervisors, managers, and specialized emergency response organization personnel, units, and teams.

- · · Development and maintenance of an integrated EM Drill and Exercise Program that provides performance based training activities for general employees, supervisors, managers, and key emergency response organization personnel, units, and specialized teams. This Program is designed primarily to provide for the development and maintenance of an effective employee and organizational emergency response capability. The Program also provides a mechanism by which to validate and evaluate the effectiveness of the EM Training Program, as well as organizational EM plans, procedures, systems, and emergency response organizations.

- · · Emergency response activities involving the immediate and situation dependent deployment, command, and control of emergency response organizations and operations necessary to mitigate and recover from the consequences of a natural or technological emergency.

- · · Support deployment of national response assets at the request of other federal agencies.

Section 2 - Hazards and Management Issues:

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

The credible hazards associated with the work activities for the management and administration of the DOE/NV EMPS undermost circumstances are limited to those normally accepted without hesitation by private industry and the general public. In addition, credible hazards are also present at some facilities/operations where quantities of hazardous materials and/or radionuclides exceed the threshold quantities specified in federal regulations.

In addition, there are creditable and significant risks and liabilities associated with a failure to develop and maintain a viable and effective EMPS in accordance with applicable industry standards and practices:

- The failure to develop an effective Operational Emergency HAZMAT Program for the NTS could leave the DOE/NV and associated organizations unprepared to effectively respond to natural or technological emergencies, resulting in the unnecessary potential for the loss of life, property, or environmental damage.
- An ineffective response to an emergency of any type or scale can pose a significantly higher risk for litigation, fines, and/or increased recovery costs as a result. Decisions in the courts continue to show a trend of placing increased liability on government and the commercial business sector for damages incurred as the result of natural disasters or technological emergencies. This trend suggests that government and business will continue to be held accountable if workers, the general public, or the environment are seriously affected by the consequences of a disaster or emergency, particularly in cases where the responsible organization was not adequately prepared or did not respond properly.
- Consideration must also be given to the fact that public and political concerns and sensitivities will continue to grow regarding government or private sector operations involving the manufacture, handling, use, storage, transportation, or disposal of hazardous chemical or radioactive materials. These factors will continue to require that the organizations responsible for these types of operations demonstrate a responsible attitude and compliance with applicable laws, regulations, and ordinances in ensuring the safety and health of workers, the general public, and the protection of the environment. This includes the maintenance of an effective emergency response organization, system, and capability to lessen, mitigate, and recover from the consequences of an emergency involving these hazardous materials.
- The failure to develop and maintain a credible and effective Operational Emergency HAZMAT Program for the NTS could also diminish the suitability and readiness of DOE/NV sites and facilities to conduct new and diverse business lines and missions.

4.8 ***Emergency Management Program and System***

Latest Revision: 8/12/2002

Management Issues:

- BN, as the Management and Operating contractor, by implementing the DOE/NV Emergency Management Program, benefits DOE employees, all other contractors and subcontractors and users and the general public surrounding the site.
- In recognition that some of the DOE/NV facilities and operations are located in local communities (Las Vegas and Santa Barbara, etc.) or on certain Air Force Bases, the DOE/NV EMPS must properly interface with local community emergency management systems and Air Force Base systems.
- In recognition of the national response capabilities maintained by DOE/NV, the EMPS must provide capabilities to support deployment of national response assets when requested by other federal agencies.

Section 3 – Standards:

In general, the EM programs and systems that are developed by private industry are based strictly on applicable federal, State, or local regulations, laws, and ordinances; and are implemented only to the extent necessary to satisfy mandatory requirements. The private sector relies almost entirely upon intrinsic organizational safety and engineering programs to reduce their operational risks, hazards, and liabilities. The emergency response organizations and capabilities developed are often provided by federal, State, and local government agencies to mitigate and recover from the consequences of any natural or technological emergency. In addition, the DOE/NV EMP must be capable of supporting unique capabilities due to remote locations, the nature of DOE/NV facilities/operations, deployment support for national response assets, and other management issues.

Standard

18 CFR 12.20

Title

Federal Energy Regulation Commission
Requirements For Emergency Plans To
Protect The Health And Safety Of
Members Of The Public Upstream And
Downstream Of Water Projects (Dams)

Note Operational Emergency Base Program

29 CFR 1910.119 or 40 CFR 68.130; 40
CFR 355 or 10 CFR 30.72

Regulatory Threshold Quantities For
Hazardous Materials And Radionuclides

Note Operational Emergency Base Program

4.8 **Emergency Management Program and System**

Latest Revision: 8/12/2002

Operational Emergency Hazardous Material Program

29 CFR 1910.38 and CFR 1910.165	OSHA Requirements for Employee Evacuation Plans and Notification Systems
---------------------------------	---

Note Operational Emergency Base Program

40 CFR 100-129	EPA Requirements Implementing The Clean Water Act Through The National Pollution Discharge Elimination System
----------------	---

Note Operational Emergency Base Program

Of particular note are requirements for contingency planning for oil spills through the 40 CFR 112 series, which mandates preparations of spill prevention controls and countermeasure plans.

40 CFR 116 and 117	EPA Requirements For Limiting Discharges Of Hazardous Chemicals Through The NPDES Permit Process
--------------------	--

Note Operational Emergency Hazardous Material Program

40 CFR 141-142	EPA Requirements Implementing The Provisions Of The Safe Drinking Water Act
----------------	--

Note Operational Emergency Base Program

40 CFR 260 and 265	EPA Regulations Regarding Emergency Planning For Hazardous Material Waste Sites
--------------------	---

Note Operational Emergency Hazardous Material Program

EPA Regulations Regarding Emergency Planning For Hazardous Material Waste Sites (may be implemented at a part of RCRA, Part B, permit process)

40 CFR 300 Series	EPA Requirements Implementing The Comprehensive Environmental Response, Compensation, And Liability Act
-------------------	---

Note Operational Emergency Base Program

EPA Requirements implementing the comprehensive environmental response, compensation, and liability act, including Title III, the Emergency Planning and Community Right-To-Know Act at 40 CFR 355

40 CFR 68	EPA Regulations Regarding Emergency Planning For Industries Using Hazardous Materials
-----------	---

Note Operational Emergency Hazardous Material Program

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

41 CFR 101-20.103-4 and 41 CFR 101-20.105	Federal Property Management Regulations For Occupant Emergency Programs And Accident And Fire Prevention
---	--

Note *Operational Emergency Base Program*

44 CFR 302	Federal Emergency Management Agency Requirements For Emergency Operations Plans For State And Local Governments That Address Similar Hazards
------------	--

Note *Operational Emergency Base Program*

49 CFR 172.600 series and 49 CFR 172.700 series	DOT Requirements For Emergency Response Information And Hazardous Materials Training
---	--

Note *Operational Emergency Base Program*

DOE O 151.1A, CRD	Comprehensive Emergency Management System
-------------------	---

Note *Paragraphs 1-6, and 8-13 only. DOE Management Programs DOE Emergency Management program requirements not addressed by cites laws and regulations or other WSS WBS elements (See WBS 2.10 Occurrence Reporting) Added by Change Request 98-003Alt. Revised per BCR-2002-013.*

NV O 151.1, CRD	Comprehensive Emergency Management System
-----------------	---

Note *Added by change request 2000-016 - 12/14/00*

Section 4 - Measurement Parameters:

The section identifies recognized measurement parameters commonly used in private institutions and industry, as well as State and local governments to validate and evaluate the adequacy of EM plans, procedures, practices, programs and systems.

- Analysis of accident and emergency response trends.
- Drill and exercises conducted versus number of planned.
- Completion of identified EMPS development and implementation milestones and objectives, as planned and scheduled.
- Completion of identified EMPS development and implementation milestones and

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

objectives, at or below cost projections or budget allocations.

Section 5 - Implementation Considerations:

All major DOE/NV on site contractors and their subcontractors contracts must continue to contain requirements for compliance with applicable emergency management laws, regulations, and DOE requirements required at the sites and facilities where the work will be performed. This DOE/NV complex-wide WSS will apply to all DOE/NV contractors, subcontractors, and users at DOE/NV-managed locales and provide the necessary and sufficient requirements, assuming affective implementation to protect the worker, the public, and the environment from adverse consequences.

The following provides a listing of the guidance documents recommended for use in the development and implementation of the DOE/NV EMP:

- Federal Emergency Management Agency, "Disaster Planning Guide for Business and Industry."
- Federal Emergency Management Agency, "Guidance for Developing State, Tribal, and Local Radiological Emergency Response Planning and Preparedness for Transportation Accidents."
- Environmental Protection Agency, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents."
- National Oil and Hazardous Substances Contingency Plan, National Response Team, "Hazardous Materials Emergency Planning Guide."
- Department of Health and Human Services (NIOSH), Publication No. 85-115, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH, OSHA, USCG, and EPA Four-Agency Document.
- National Fire Protection Association, "Hazardous Materials Emergency Response Handbook."
- U.S. Department of Transportation, "Emergency Response Guidebook."
- Environmental Protection Agency Publication No. 9285, "Standard Operating Safety Guides." Office of Emergency and Remedial Response, US EPA.

4.8 *Emergency Management Program and System*

Latest Revision: 8/12/2002

Section 6 - Work Environment:

All principal work activities are limited to management and administrative functions performed either in an office environment, or in a variety of construction, industrial, and field environments during the conduct of assessments, drills, and exercises. Staff superintendents may also be required to provide assistance to Incident Commanders at the scene of an actual emergency, situation dependent, or evaluate emergency response activities during post-emergency assessments, critiques, or investigations.

Section 7 - Uncertainties or Issues:

The type and nature of proposed or future operations and missions will significantly influence the scope and sophistication of the EMPS developed and maintained by DOE/NV. Unless an Operational Emergency HAZMAT Program can be developed and maintained as a foundation for future expansion and growth, the lack of a credible and effective EMP that is capable of addressing the operational requirements of new business lines or missions may hinder, or detract from the operational readiness of DOE/NV to satisfactorily startup the associated facilities and/or operational activities associated with these new business lines or missions.

Section 8 - Training:

The training of EM staff professionals and emergency response organization personnel is crucial to the maintenance of currency and proficiency in applicable industry standards, practices, concepts of operation, and program management.

Section 9 - Vulnerabilities:

The compliance status of the DOE/NV EMPS has historically been vulnerable to shortfalls in the funding and resources necessary to effectively develop and implement an Operational Emergency HAZMAT Program.

4.9 Environmental Monitoring Program

Latest Revision: 9/30/1996

Section 1 - Work Activity:

The purpose of the Environmental Monitoring Program (EMP) is to assist in the minimization of discharges to the environment and the identification of areas for improving environmental performance. Persons with responsibilities within the program provide the information, data, and assessments necessary to comply with regulatory requirements and support DOE policies and objectives at the Nevada Test Site (NTS), and all other facilities managed by the DOE Nevada Operations Office (DOE/NV). These other DOE/NV-managed sites currently include the North Las Vegas Facility, the Remote Sensing Laboratory, Amador Valley Operations, Santa Barbara Operations, Las Alamos Operations, and the Washington Aerial Measurements Facility. Management of the Tonopah Test Range (TTR) is being transferred from the DOE Kirtland Area Office to DOE/NV, and complete transfer should be complete by October 1, 1996. Transfer of responsibility for environmental monitoring at the TTR, however, was expedited and completed in May 1996.

The EMP consists of two primary components: Effluent Monitoring; and Environmental Surveillance. Effluent Monitoring is designed to detect and quantify the release of effluents from specifically identified sources. Environmental Surveillance is designed to detect, quantify, and assess the potential impacts of biological, chemical, and physical agents in the ambient environment, independent of any specific release or activity. The common objectives of Effluent Monitoring and Environmental Surveillance are to:

- Verify compliance with applicable Federal, state, and local regulations, and with commitments made in environmental documents such as Environmental Impact Statements, or agreements with external parties, e.g., state of Nevada.
- Establish environmental quality baselines.
- Quantify existing or potential environmental problems and evaluate the need for remedial or mitigative actions.
- Detect, characterize, and report unplanned releases.
- Provide a continuing assessment of pollution abatement programs.
- Evaluate the effectiveness of effluent treatment and control.

Additionally, Effluent Monitoring is necessary to support specific permit reissuance or

4.9 *Environmental Monitoring Program*

Latest Revision: 9/30/1996

revision. Environmental Surveillance is necessary to characterize and define trends in the biological, chemical, and physical condition of ambient environmental media.

The conduct of the EMP consists of five major elements: Design; Establishment of sampling/monitoring locations; Collection of samples and/or data; Assessment of data; and Reporting of results.

Design - The design of the EMP is based on obtaining the data and information necessary to meet regulatory requirements and DOE objectives. Factors in designing the EMP include specific regulatory or permit requirements, site accessibility, availability of utilities, available resources, meteorological conditions, potential transport pathways for contaminants, location of ecologically sensitive areas, and location of members of the general public. The EMP design is periodically reviewed and revised as necessary based on any changes in program objectives or design factors.

Establishment of Sampling/Monitoring Locations - Specific sampling/monitoring locations are established based on the design of the EMP. These locations may be maintained for a specific period of time, or indefinitely until a change in program design.

Collection of Samples and/or Data - Samples and/or data are collected from established sampling/monitoring locations. The specific type of sample(s) and/or data collected, as well as the frequency of collection, is dependent on factors such as specific regulatory or permit requirements, anticipated or potential contaminant release, physical and chemical nature of contaminant(s), site accessibility, and available resources.

Assessment of Data - Data and information generated as a result of the EMP are reviewed and assessed to ensure: usability of the data and information; identification of any unusual or unexpected results; and support of EMP objectives. Assessment of EMP data is used to validate, or modify as necessary, the design of the EMP.

Reporting of Results - Reporting of results from the EMP is done to either satisfy a specific regulatory or permit requirement, or to document the performance of the EMP. In addition to reporting sampling and/or monitoring results, reports may contain information such as: a) bases for EMP design; b) procedures, techniques, or methodologies used in the EMP; c) data assessment, including potential exposure to members of the public; and d) quality assurance and quality control data.

Section 2 - Hazards and Management Issues:

4.9 *Environmental Monitoring Program*

Latest Revision: 9/30/1996

The most significant hazard associated with the EMP is the undetected release of contaminants to the environment. If undetected, no mitigative actions would be taken, and such releases could lead to significant environmental damage and/or exposure to the public.

Another significant hazard associated with the EMP would be loss of public trust and confidence if DOE/NV could not demonstrate its ability to conduct its activities in an environmentally safe and sound manner. Management needs to ensure the adequacy of the EMP in demonstrating, via the Annual Site Environmental Report, the adherence of DOE/NV activities to environmental regulations. The loss of trust and confidence by federal and/or state regulators, or private stakeholders, could significantly impact the ability of DOE/NV to conduct its activities.

Since several of the EMP objectives do not have clearly delineated end-points, the cost-benefit assessment of pursuing these objectives is a management issue.

Other management issues associated with the EMP include ensuring a stable funding base and an experienced, professional staff. Access to reliable, high-quality analytical services is necessary because much of the results of the EMP depend on analyses of samples.

Section 3 – Standards:

Standard	Title
10 CFR 20.1302	Compliance with the Dose Limit for Individual Member of the Public
<i>Note Provides standards for monitoring of releases of Nuclear Regulatory Commission-licensed materials to unrestricted areas. Although DOE/NV is not regulated by the NRC, this NRC citation was selected because 10 CFR 835 does not address public exposure.</i>	
40 CFR 61 Subpart H	National Emission Standards for Hazardous Air Pollutants
<i>Note Subpart H provides requirements for monitoring the release of radionuclides other than radon from Department of Energy facilities.</i>	
40 CFR 61 Subpart Q	National Emission Standards for Hazardous Air Pollutants
<i>Note Subpart Q provides federal standards for radon emissions from DOE facilities.</i>	
DOE O 5400.1, Section II.4.c., and Chapter IV	General Environmental Protection Program

4.9 Environmental Monitoring Program

Latest Revision: 9/30/1996

Note DOE Order 5400.1, "General Environmental Protection Program," II.4.c., requires an Annual Site Environmental Report (ASER) which provides a comprehensive summary of all environmental activities at all DOE/NV-managed sites, including the TTR starting with the 1996 report. This report has been routinely distributed to a wide range of federal and state regulatory agencies, and public and private NTS stakeholders. This report is commonly used to demonstrate the general efficacy and compliance of environmental activities at DOE/NV-managed sites. Continuance of this report is necessary to ensure public trust in the overall scope of environmental protection activities at DOE/NV-managed sites.

DOE Order 5400.1, Chapter IV, "Environmental Monitoring Requirements," contains requirements for monitoring non-NRC licensed materials to protect the public from on- and off-site releases. This Chapter of the Order will be replaced by 10 CFR 834 when it is signed into law.

Nevada Administrative Code (NAC)	Sewage Disposal
444.750 - 444.840	

Note Required for state permitting of sewage system effluent. DOE/NV-managed facilities outside of Nevada are subject to requirements of host state and local regulations.

Nevada Administrative Code (NAC)	Disposal of Hazardous Waste –
444.8632	Compliance with Federal Regulations
	Adopted by Reference

Note Adopts by reference federal standards for disposal of hazardous waste including monitoring requirements. DOE/NV-managed facilities outside of Nevada are subject to requirements of host state and local regulations.

Nevada Administrative Code (NAC)	Public Water Systems
445A.453 - 445A.459	

Note Provides standards for sampling and monitoring of potable water systems. DOE/NV-managed facilities outside of Nevada are subject to requirements of host state and local regulations.

Section 4 - Measurement Parameters:

- Percentage of sampling/monitoring performed in accordance with EMP design and schedules.
 - Required environmental reports submitted/issued by required deadlines.
-

4.9 Environmental Monitoring Program

Latest Revision: 9/30/1996

- EMP conducted within established budgetary limits.

Section 5 - Implementation Considerations:

The AGREEMENT IN PRINCIPLE between the Department of Energy (DOE) and the state of Nevada includes the provision that DOE will prepare and implement an EMP. This EMP will include effluent, meteorological, and groundwater monitoring, as well as environmental surveillance of air and water. Adherence to this agreement is necessary to ensure a cooperative working relationship between DOE/NV and the State of Nevada.

Water Pollution Control General Permit GNEV93001, Section I.D., provides specific requirements for monitoring of effluent from sewage treatment works at the NTS. Adherence to these monitoring requirements is necessary to avoid possible findings and fines by the state of Nevada.

The EMP currently implemented at DOE/NV-managed sites meets all of the requirements of the standards given above. However, because components of the EMP cross several different programs, including waste management, environmental restoration, potable water systems, construction activities, waste water treatment, and environmental surveillance, consistent implementation of the EMP is difficult. Such fragmentation of the EMP and lack of clear delineation of responsibilities could lead to duplication of efforts, or conversely, significant "gaps" in the overall performance of environmental programs. Implementation of environmental monitoring could be improved by consolidating management of all operational environmental monitoring activities under a single, project-level EMP. Such a consolidation would not require any significant reorganization efforts, and would result in improved EMP efficiency which would lead to decreased overall EMP costs.

Implementation of the EMP needs to be more closely aligned with the activities of the Environmental Protection Program (EPP). The EMP and the EPP should be considered two aspects of the overall environmental program at DOE/NV-managed sites. Formal merging of these two programs would compromise the performance assessment aspects of the EPP. However, a closer working relationship, and a better delineation of specific responsibilities, e.g., monitoring vs. performance assurance, between the EMP and the EPP would facilitate the implementation of both programs.

Section 6 - Work Environment:

The EMP includes outdoor field activities conducted across the entire NTS throughout the entire year, exposing EMP personnel to the full range of climatic conditions. In some

4.9 *Environmental Monitoring Program*

Latest Revision: 9/30/1996

situations, personnel could be exposed to hazardous chemical or biological contaminants. Other components of the EMP are conducted in a standard office work environment.

Section 7 - Uncertainties or Issues:

A number of new environmental standards are scheduled to be promulgated in the near future. These new standards, discussed below, could significantly impact the EMP at the NTS.

(1) 10 CFR Part 834, "Radiation Protection of the Public and the Environment," is scheduled to be effective by June 1, 1996. This Rule will provide federal regulations for radiological environmental monitoring at DOE facilities, and will replace and codify the essential elements of DOE Order 5400.5, "Radiation Protection of the Public and the Environment." This Rule will require the development of an Environmental Radiological Protection Program (ERPP) which will consolidate radiological environmental monitoring requirements for all environmental surveillance, waste operations, ground water monitoring, quality assurance, residual radioactivity, and environmental ALARA programs. An Implementation Plan will be required describing how the ERPP will be implemented at DOE/NV-managed sites and how full compliance with 10 CFR Part 834 will be achieved. The Task Manager for the Environmental Monitoring Group in the Analytical Services Section of Environmental Services is currently designated as the coordinator for the development of the ERPP.

(2) A Consent Order and Site Treatment Plan (CO) between the state of Nevada and DOE/NV was signed on March 27, 1996. This CO will fulfill the requirements of the Federal Facility Compliance Act of 1992 regarding the management and disposal of hazardous wastes at the NTS and other DOE/NV-managed facilities within the state of Nevada. Although this CO will not contain any explicit monitoring requirements, sampling/monitoring may be necessary to ensure compliance with the provisions of the CO.

(3) ISO 14000 is scheduled to be finalized and issued during 1996. ISO 14000 will provide international standards for the establishment of an Environmental Management System (EMS), including monitoring activities. Establishment of an ISO 14000 EMS would provide an internationally recognized level of conduct for environmental activities at the NTS, and could facilitate attracting new work or projects to the NTS.

Management oversight of the TTR is being transferred from the DOE Kirtland Area Office to DOE/NV. Transfer of responsibility for environmental monitoring at the TTR is currently being expedited and should be complete by May 1996. Completing transfer by this date will depend upon agreement of an environmental monitoring scope of work and

4.9 Environmental Monitoring Program

Latest Revision: 9/30/1996

the availability of funding for the remainder of FY 1996. The availability of sampling instrumentation and support services at the TTR for the EMP needs to be determined. If support services for the TTR must be provided from the NTS, the logistical effort and expense of the EMP at the TTR will be greatly increased.

Many of the specific details of the EMP are not delineated in any standard. However, DOE/NV and its contractors require information regarding the environmental impact, or lack of, of their activities. Such information is necessary for general management of DOE/NV activities, and to provide public confidence in the ability of DOE/NV to conduct its operations in an environmentally safe and sound manner. Lack of public confidence could significantly impact the ability to bring new work or projects to the NTS, ultimately jeopardizing the continued viability of the NTS.

The majority of the EMP is currently funded under Common Site Support for the NTS. The mechanism(s) for future funding of environmental monitoring at locations off-site, e.g., TTR, or for new projects brought to the NTS needs to be established.

The prerequisites and potential for exporting environmental monitoring services to other facilities or operations should be discussed.

Section 8 - Training:

Personnel responsible for the collection of samples require training and qualification in specific instrumentation and techniques used.

Section 9 - Vulnerabilities:

Non-compliance with environmental monitoring requirements could lead to fines and penalties. 10 CFR Part 834 will specifically invoke the provisions of 10 CFR Part 820, "Procedural Rules for DOE Nuclear Activities," which will subject DOE/NV contractors to potential civil and criminal penalties for non-compliance with specified monitoring requirements.

The loss of public trust and confidence in the ability of DOE/NV to conduct its operations in an environmentally safe and sound manner could significantly impact the ability to bring new work or projects to DOE/NV-managed sites, ultimately jeopardizing the continued viability of these sites.

B2 *DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process*

Latest Revision: 8/22/2002

Section 1 - Work Activity:

To address the categories of activities exempt from the DOE/NV Necessary and Sufficient Closure Process, a list is included to be used with the WSS to identify the additional DOE and DOE/NV Directives applicable to exempt work. The categories of activities, which were not included in the initial Necessary and Sufficient Closure Process, are as follows:

Nuclear Device Assembly/Disassembly
Energetic Experiments with Special Nuclear Materials (SNM)
Nuclear Explosive Safety
Safeguards and Security of SN
Classification of Information
National Emergency Response Assets

Section 2 - Hazards and Management Issues:

N/A

Section 3 – Standards:

CRD means Contractor Requirements Document attachment to an Order.

Standard	Title
DOE M 140.1-1B, CRD	Interface with the Defense Nuclear Facility Safety Board

Note Revised by Change Request 2001-012a - 8/13/01.

DOE M 232.1-1A	Occurrence Reporting and Processing of Operations Information
----------------	---

Note Added by Change Request 99-002, and incorporated by reference in DOE/NV O 232.1A, CRD

DOE M 251.1-1A	Directives System Manual
----------------	--------------------------

Note Added by Change Request 99-017, also added to WBS 1.8.

DOE M 471.2-1	Classified Matter Protection and Control Manual
---------------	---

Note

DOE M 5632.1C-1, Chg 1	Manual for Protection and Control of Safeguards and Security Interests
------------------------	--

B2 ***DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process***

Latest Revision: 8/22/2002

Note Chapter III, paragraph, 1,2, and 4-9. Chapter IX and XI cancelled

DOE M 5632.7-1	Firearms Qualification Course Manual
----------------	--------------------------------------

Note

DOE M 5639.6A-1	Manual of Security Requirements for the Classified Automated Information System Security Program
-----------------	--

Note Archived in www.explorer.doe.gov:1776/htmls/directives.html

DOE N 441.1	Radiological Protection for DOE Activities
-------------	--

Note Paragraph 6e only.

DOE O 151.1A, CRD	Comprehensive Emergency Management System
-------------------	---

Note Added by Change Request 98-003, 5/4/99. Revised per BCR-2002-013.

DOE O 210.1, CRD	Performance Indicators and Analysis of Operations Information
------------------	---

Note

DOE O 232.1A, CRD	Occurrence Reporting and Processing of Operations Information
-------------------	---

Note

DOE O 251.1A, CRD	Directives System Order
-------------------	-------------------------

Note Added by Change Request 99-017, also added to WBS 1.8.

DOE O 414.1A Chg 1, CRD	Quality Assurance
-------------------------	-------------------

Note Added by Change Request 2001-013, 5/16/01. Changed by BCR-2001-015, dated 9/5/2001. Added to B2 and WBS 4.7.

DOE O 425.1, CRD	Startup and Restart of Nuclear Facilities
------------------	---

Note

DOE O 452.1B	Nuclear Explosive and Weapon Surety Program
--------------	---

Note Added by BCR 99-004. Revised by BCR 2001-016a.

DOE O 452.2B	Safety of Nuclear Explosive Operations
--------------	--

Note Added by BCR 99-003. Revised by BCR 2001-016a.

DOE O 470.1, CRD	Safeguards and Security Programs
------------------	----------------------------------

Note

B2 ***DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process***

Latest Revision: 8/22/2002

DOE O 471.1, CRD	Identification and Protection of Unclassified Controlled Nuclear Information
<i>Note</i>	
DOE O 471.2A, CRD	Information Security Program
<i>Note</i>	
DOE O 472.1, CRD	Personnel Security Activities
<i>Note</i>	
DOE O 5300.2D	Telecommunication: Emission Security (TEMPEST)
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html	
DOE O 5300.3D	Telecommunication: Emission Security
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html	
DOE O 5300.4D	Telecommunication: Protected Distribution Systems
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html	
DOE O 5400.5	Radiation Protection of the Public and the Environment
<i>Note</i>	
DOE O 5480.19, Chg 1	Conduct of Operations Requirements for DOE Facilities
<i>Note</i>	
DOE O 5480.21	Unreviewed Safety Questions
<i>Note</i>	
DOE O 5480.22, Chg 2	Technical Safety Requirements
<i>Note</i>	
DOE O 5480.23, Chg 1	Nuclear Safety Analysis Reports
<i>Note</i>	
DOE O 5480.24	Nuclear Criticality Safety
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html	
DOE O 5530.1A	Accident Response Group
<i>Note</i>	
DOE O 5530.2	Nuclear Emergency Search Team

B2 ***DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process***

Latest Revision: 8/22/2002

Note

DOE O 5530.3	Radiological Assistance Program
--------------	---------------------------------

Note

DOE O 5530.4	Aerial Measuring System
--------------	-------------------------

Note

DOE O 5530.5	Federal Radiological Monitoring and Assessment Center
--------------	---

Note

DOE O 5610.12	Packaging And Offsite Transportation Of Nuclear Components, And Special Assemblies Associated With The Nuclear Explosive And Weapon Safety Program
---------------	--

Note *Added by letter of direction from the DOE Contracting Officer to BN and WSI, 3/11/99*

DOE O 5610.2	Control of Weapon Data
--------------	------------------------

Note *Archived in www.explorer.doe.gov:1776/htmls/directives.html*

DOE O 5630.12A	Safeguards and Security Inspection and Assessment Program
----------------	---

Note *Portioned cancelled by DOE O 231.1. Archived.*

DOE O 5631.2C	Personnel Security Programs
---------------	-----------------------------

Note *Chapters 1-9 only. Archived in www.explorer.doe.gov:1776/htmls/directives.html*

DOE O 5632.1C	Protection and Control of Safeguards and Security Interests
---------------	---

Note

DOE O 5632.7	Protective Force Program
--------------	--------------------------

Note

DOE O 5633.3B	Control and Accountability of Nuclear Materials
---------------	---

Note *Archived in www.explorer.doe.gov:1776/htmls/directives.html*

DOE O 5639.8	Security of Foreign Intelligence Information and Sensitive Compartmented Information Facilities
--------------	---

B2 ***DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process***

Latest Revision: 8/22/2002

Note

DOE O 5670.1	Management and Control of Foreign Intelligence
--------------	--

Note

DOE O 5670.3	Counterintelligence Program
--------------	-----------------------------

Note

NV M 210.X, CRD	Contractor Performance Administration
-----------------	---------------------------------------

Note *Added by Change Request 2000-014, also added to WBS 1.8 and B3 List.*

NV M 220.XB, CRD	NNSA/NV Oversight Management Systems
------------------	--------------------------------------

Note *Added by Change Request 2000-004, 3/1/2000. Changed by Change Request 2000-007, 3/15/2000. Revised to Chg. 2 by Change Request 2001-008 - 2/26/01. Revised by BCR-2002-003. Added to WBS 1.8 and B3.*

NV M 251.1-1B, CRD	NNSA/NV Directives System Manual
--------------------	----------------------------------

Note *Added by Change Request 99-017. Also added to WBS 1.8. Revised by BCR 2002-011, 4/1/2002.*

NV M 412.X1B, CRD	Real Estate/Operations Permit
-------------------	-------------------------------

Note *Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2000-006, 3/15/2000. Added to WBS 1.8 and B3.*

NV M 412.X2, CRD	Readiness Reviews
------------------	-------------------

Note *Added by Change Request 2000-014, 8/22/2000, also added to WBS 1.8 and B3 List.*

NV M 412.XA, CRD	Project Screening and Location Approval Process
------------------	---

Note *Added by Change Request 2000-004, 3/1/2000. Added to WBS 1.8 and B3.*

NV M 450.3XB, CRD	Work Smart Standards Manual
-------------------	-----------------------------

Note *Added by Change Request 2000-004, 3/1/2000. Revised by BCR 2000-014. Changed by Change Request 2001-009 - 4/3/01. Revised by BCR 2002-010. Also in WBS 1.8 and B3.*

NV M 450.XA, Chg 1, CRD	Authorization and Activity Agreements for Facilities and Operation for Facilities and Operations
-------------------------	--

Note *Added by Change Request 2000-004, 3/1/2000. Added to WBS 1.8 and B3. Revised by BCR 2000-014.*

B2 ***DOE Directives Applicable to Activities Not Included in the Necessary and Sufficient Process***

Latest Revision: 8/22/2002

NV O 151.1, CRD	Comprehensive Emergency Management System
-----------------	---

Note Added by change request 2000-016 - 12/14/00

NV O 230.XA, CRD	Lessons Learned Program
------------------	-------------------------

Note Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2001-001 - 3/19/01. Added to WBS 1.8 and B3.

NV O 232.1A, CRD	Occurrence Reporting and Processing of Operations Information
------------------	---

Note Added by Change Request 99-002, 9/23/99

NV O 412.X3A, CRD	Work Control
-------------------	--------------

Note Added by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B3. Changed by Change Request 2001-007 - 2/26/01.

NV O 450.X	Nevada Test Site Access and Area Control
------------	--

Note Added by BCR 2002-019. Also added to WBS 1.8 and B3.

NV O 452.1B	Nuclear Explosive and Weapon Surety Program
-------------	---

Note Added by BCR 1999-004. Revised by BCR 2002-004.

NV O 452.2B	Safety of Nuclear Explosive Operations
-------------	--

Note Added by BCR 99-003. Revised by BCR 2002-004.

NV O 470.X, CRD	Intruder Interdiction
-----------------	-----------------------

Note Added by Change Request 98-012

NV O 54XF.1	Characterization of Event Sites
-------------	---------------------------------

Note

NV O 56XE.1B	Underground Nuclear Testing
--------------	-----------------------------

Note

NV O 56XF.1	Testing Readiness Assessments
-------------	-------------------------------

Note

NV O 56XG.1, Chg 1, CRD	Subcritical Experiment
-------------------------	------------------------

Note Added by Change Request 98-006, 10/15/98

NV O 56XH.1A, CRD	Subcritical Experiment (SCE) Safety Program
-------------------	---

Note Added by Change Request 98-007, 8/6/98; revised by BCR 99-016.

B2 ***DOE Directives Applicable to Activities Not Included in the
Necessary and Sufficient Process***

Latest Revision: 8/22/2002

Section 4 - Measurement Parameters:

N/A

Section 5 - Implementation Considerations:

N/A

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A

B3 DOE Directives Applicable to the Device Assembly Facility

Latest Revision: 8/22/2002

Section 1 - Work Activity:

A facility specific list of DOE Directives established to serve as the basis of requirements for the Device Assemble Facility. The activities conducted at the DAF consist of activities exempted from the Necessary and Sufficient Process.

Section 2 - Hazards and Management Issues:

N/A

Section 3 – Standards:

CRD means Contractor Requirements Document attachment to an Order.

Standard	Title
DOE G 452.2A-1A	Implementation Guide for Use with DOE 452.2A, Safety of Nuclear Explosive Operations
<i>Note Added by Change Request 2000-005, 3/1/2000</i>	
DOE M 140.1-1B, CRD	Interface with the Defense Nuclear Facility Safety Board
<i>Note Revised by Change Request 2001-012a - 8/13/01.</i>	
DOE M 231.1-1	Environment Safety and Health Reporting Manual
<i>Note Added by Change Request 2000-005, 3/1/2000</i>	
DOE M 232.1-1A	Occurrence Reporting & Processing of Operations Information
<i>Note Added by Change Request 99-002, 9/23/99 and by direct reference in DOE/NV O 232.1A, CRD</i>	
DOE M 440.1-1	DOE Explosive Safety Manual
<i>Note Added by Change Request 2000-005, 3/1/2000</i>	
DOE M 471.2-1B	Classified Matter Protection and Control Manual
<i>Note Added by Change Request 2000-005, 3/1/2000</i>	
DOE M 471.2-2	Classified Information System Security Manual

B3 **DOE Directives Applicable to the Device Assembly Facility**

Latest Revision: 8/22/2002

Note Added by Change Request 2000-005, 3/1/2000

DOE M 5632.1C-1, Chg 1	Manual for Protection and Control of Safeguards and Security
------------------------	--

Note Added by Change Request 2000-005, 3/1/2000

DOE N 441.1	Radiological Protection for DOE Activities
-------------	--

Note Added by Change Request 2000-005, 3/1/2000

DOE O 1360.2B	Unclassified Computer Security Program
---------------	--

Note Archived in www.explorer.doe.gov:1776/htmls/directives.html *Note:*
Converted to a Manual by DOE O 200.1

DOE O 151.1A, CRD	Comprehensive Emergency Management System
-------------------	---

Note Added by Change Request 98-003, 5/4/99. Revised per BCR-2002-013.

DOE O 200.1, CRD	Information Management Program
------------------	--------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 210.1 Chg 2, CRD	Performance Indicators and Analysis of Operations Information
------------------------	---

Note Added by Change Request 2000-005, 3/1/2000

DOE O 225.1A, CRD	Accident Investigation
-------------------	------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 231.1, CRD	Environment Safety and Health Reporting
------------------	---

Note Added by Change Request 2000-005, 3/1/2000

DOE O 232.1A, CRD	Occurrence Reporting and Processing of Operations Information
-------------------	---

Note Added by Change Request 99-002, 9/23/99 and by direct reference in DOE/NV O 232.1A, CRD

DOE O 414.1A Chg 1, CRD	Quality Assurance
-------------------------	-------------------

Note Added by Change Request 2001-013, 5/16/01. Changed by BCR-2001-015, dated 9/5/2001. Added to B2 and WBS 4.7.

DOE O 420.1 Chg 2, CRD	Facility Safety
------------------------	-----------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 425.1A, CRD	Startup and Restart of Nuclear Facilities
-------------------	---

Note Added by Change Request 2000-005, 3/1/2000

DOE O 430.1A, CRD	Life Cycle Asset Management
-------------------	-----------------------------

B3 **DOE Directives Applicable to the Device Assembly Facility**

Latest Revision: 8/22/2002

Note Added by Change Request 2000-005, 3/1/2000

DOE O 4330.4B	Maintenance Management Program
---------------	--------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 435.1, CRD	Radioactive Waste Management
------------------	------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 440.1A, CRD	Worker Protection Management for DOE Federal and Contractor Employees
-------------------	--

Note Sections 1-14.15, 18 and 20

DOE O 452.1B	Nuclear Explosive and Weapons Surety Program
--------------	---

Note Added by BCR 1999-004. Revised by BCR 2001-016a.

DOE O 452.2B	Safety of Nuclear Explosive Operations
--------------	--

Note Added by BCR 1999-003. Revised by BCR 2001-016a.

DOE O 460.1A, CRD	Packaging and
-------------------	---------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 460.2 Chg 1, CRD	Department Materials Transportation and packaging Management
------------------------	---

Note Added by Change Request 2000-005, 3/1/2000

DOE O 470.1, CRD	Safeguards and Security System
------------------	--------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 471.1, CRD	Identification and Protection of Unclassified Controlled Nuclear Information
------------------	--

Note Added by Change Request 2000-005, 3/1/2000

DOE O 471.2A, CRD	Information Security Program
-------------------	------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 472.1B, CRD	Personnel Security Activities
-------------------	-------------------------------

Note Added by Change Request 2000-005, 3/1/2000

DOE O 5300.2D	Telecommunications: Emission Security ITEMPEST
---------------	---

Note Archived in www.explorer.doe.gov:1776/htmls/directives.html Note:
Converted to Manual see DOE O 200.1 replaced by DOE M 200.1-1

B3 DOE Directives Applicable to the Device Assembly Facility

Latest Revision: 8/22/2002

DOE O 5300.3D	Telecommunications: Communications Security
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html <i>Note:</i> Converted to Manual see DOE O 200.1 replaced by DOE M 200.1-1	
DOE O 5300.4D	Telecommunications: Protected Distribution Systems
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html <i>Note:</i> Converted to Manual see DOE O 200.1 replaced by DOE M 200.1-1	
DOE O 5400.5 Chg 2	Radiation Protection of the Public and the Environment
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5480.19 Chg 1	Conduct of Operations Requirements for DOE Facilities
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5480.20A	Personnel Selection, Qualification and Training Requirements for DOE Nuclear Facilities
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5480.21	Un-reviewed Safety Questions
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5480.22, Chg 2	Technical Safety Requirements
<i>Note</i> Archived in www.explorer.doe.gov:1776/htmls/directives.html	
DOE O 5480.23, Chg 1	Nuclear Safety Analysis Reports
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5610.12	Packaging and Off Site Transportation of Nuclear Components and Special Assemblies Associated with the Nuclear Explosive and Weapons Safety Program
<i>Note</i> Added by letter of direction from the DOE/NV Contracting Officer to WSI and BN, 3/11/99	
DOE O 5610.2 Chg 1	Control of Weapon Data
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE O 5632.7A, Chg 1	Protective Force Program
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	

B3 **DOE Directives Applicable to the Device Assembly Facility**

Latest Revision: 8/22/2002

DOE P 450.4	Safety Management System Policy
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE-DP-STD-3016-99	Limited Standard Hazard Analysis Reports for Nuclear Explosive Operations
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE-STD-1048-92	Performance Indicators Guidance Document
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE-STD-1073-93	Guide for Operational Configuration Management
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE-STD-3009-94	Performance Guide for U.S. Department of Energy Non-reactor Nuclear Facility Safety Analysis Reports
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
DOE-STD-3015-97	Nuclear Explosive Safety Study Process
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
NV M 210.X, CRD	Contractor Performance Administration
<i>Note</i> Added by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2.	
NV M 220.XB, CRD	NNSA/NV Oversight Management System
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Changed by Change Request 2000-007, 3/15/2000. Revised by Change Request 2000-014, 8/22/2000. Revised to Chg. 2 by Change Request 2001-008 - 2/26/01. Revised by BCR 2002-003. Added to WBS 1.8 and B2.	
NV M 412.X1B, CRD	Real Estate/Operations Permit
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2000-006, 3/15/2000. Updated by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2.	
NV M 412.X2, CRD	Readiness Reviews
<i>Note</i> Added by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2.	
NV M 412.XA, CRD	Project Screening and Location Approval Process
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2.	

B3 **DOE Directives Applicable to the Device Assembly Facility**

Latest Revision: 8/22/2002

NV M 450.3XB, CRD	DOE/NV Work Smart Standards Manual
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2000-014, 8/22/2000. Changed by 2001-009. Revised by BCR 2002-010. Added to WBS 1.8 and B2.	
NV M 450.XA, Chg 1, CRD	Authorization Agreements for Facilities and Operation for Facilities and Operations
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2.	
NV O 230.XA, CRD	Lessons Learned Program
<i>Note</i> Added by Change Request 2000-004, 3/1/2000. Revised by Change Request 2001-001 - 3/19/01. Added to WBS 1.8 and B2.	
NV O 232.1A, CRD	Occurrence Reporting and Processing of Operations Information
<i>Note</i> Added by Change Request 99-002, 9/23/99	
NV O 412.X3A, CRD	Work Control
<i>Note</i> Added by Change Request 2000-014, 8/22/2000. Added to WBS 1.8 and B2. Changed to DOE/NV O 412.X3A, CRD by Change Request 2001-007 - 2/26/01.	
NV O 450.X	Nevada Test Site Access and Area Control
<i>Note</i> Added by BCR 2002-019. Also added to WBS 1.8 and B2.	
NV O 452.1B	Nuclear Explosive and Weapons Surety Program
<i>Note</i> NV O 452.1A, CRD, added by BCR 99-004.	
NV O 452.2B	Safety of Nuclear Explosive Operations
<i>Note</i> Added by BCR 99-003. Revised by BCR 2002-004.	
NV O 56XE.1B	Underground Nuclear Testing
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
NV O 56XF.1	Testing Readiness Assessments
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
NV O 56XG.1, Chg 1, CRD	Sub-Critical Experiments
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	
NV O 56XH.1A, CRD	Sub-Critical Experiments Safety Requirements Safety Requirements
<i>Note</i> Added by Change Request 2000-005, 3/1/2000	

B3 DOE Directives Applicable to the Device Assembly Facility

Latest Revision: 8/22/2002

NV O 151.1, CRD

Comprehensive Emergency Management
System

Note Added by change request 2000-016 - 12/14/00

Section 4 - Measurement Parameters:

N/A

Section 5 - Implementation Considerations:

N/A

Section 6 - Work Environment:

N/A

Section 7 - Uncertainties or Issues:

N/A

Section 8 - Training:

N/A

Section 9 - Vulnerabilities:

N/A